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# Quality Assurance Series

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# Quality Assurance Series

GS-1910

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## **SERIES DEFINITION**

This series includes all positions the duties of which are to perform, administer, or advise on work concerned with assuring the quality of products acquired and used by the Federal Government. The work of this series involves: (1) the development of plans and programs for achieving and maintaining product quality throughout the item's life cycle; (2) monitoring operations to prevent the production of defects and to verify adherence to quality plans and requirements; and (3) analysis and investigation of adverse quality trends or conditions and initiation of corrective action. The duties of these positions require analytical ability combined with knowledge and application of assurance principles and techniques, and knowledge of pertinent product characteristics and the associated manufacturing processes and techniques.

This standard supersedes the standard for the Quality Assurance Series, GS-1910, issued in June 1970.

## **SERIES COVERAGE**

This series covers positions involved in planning, developing, or administering quality assurance programs supporting the development, acquisition, production, use, maintenance, storage, and supply of products required by Federal agencies. Such positions are primarily concerned with the systematic prevention of defects and nonconformances, the identification of unsatisfactory trends and conditions, and the correction of factors which may contribute to defective items. The grade level criteria in this standard cover nonsupervisory quality assurance positions at the operational level (I. e., those positions providing direct support to acquisition, production, maintenance, or supply activities) as well as positions serving in a staff or project management capacity in quality assurance work.

### *Quality Assurance Versus Inspection*

Quality assurance specialists utilize a variety of administrative, analytical, and technical methods and techniques to insure the quality and reliability of products. The scope of the activities involved in the various quality assurance functional programs is discussed in detail under the section titled Occupational Information. While not all quality assurance positions may be concerned with the entire range of activities described for each functional program, they are concerned with a variety of systematic activities designed to prevent defective or nonconforming products and to assure that these products are acceptable and perform as intended.

Inspection, by physical test or measurement of the product, is but one of the techniques applied by quality assurance specialists. In the context of quality assurance work, tests and measurements at various points in the production cycle: provide objective evidence as to the effectiveness of quality procedures and controls; identify potential problem areas or inherent weaknesses in the product itself, the technical data, materials, or manufacturing processes; and serve as a basis for adjusting surveillance or control over operations.

For inspection positions, test and measurement of the product typically serve a far narrower purpose, in that they provide the basis for accepting or rejecting the product, service, or process involved. The inspector is primarily concerned with determining conformance of the product to drawings and/or technical specifications, reporting defects encountered and their probable causes. The treatment of work which primarily involves inspection or test functions is discussed further under Exclusions.

## EXCLUSIONS

1. Work which has as its primary purpose: the acceptance or rejection of the product of trades, crafts, or manual labor work through inspection processes; the determination of the condition of supplies, equipment, or material as serviceable, repairable, or condemned; or work of a similar nature where such determinations require trades, crafts, or manual labor occupation knowledge and experience as the paramount requirement are graded under the [Federal Wage System](#).
2. Positions which require application of the principles of professional engineering and related mathematical and physical science concepts are classified in the appropriate series in the [Engineering and Architecture Group, GS-0800](#).
3. Positions performing professional or related clerical work primarily involving the gathering or interpretation of statistical data in support of quality assurance programs are classified in the appropriate series in the [Mathematics and Statistics Group, GS-1500](#).
4. Positions performing inspection work primarily concerned with legal or regulatory compliance determinations are classified to the appropriate specialized series. For example, see the definition for the [Investigation Group, GS-1800](#), and definitions for specific series such as the [Food Inspection Series, GS-1863](#).
5. Positions which apply a practical knowledge of engineering methods and techniques; knowledge of construction practices, methods, techniques, costs, materials, and equipment; and the ability to read and interpret engineering and architectural plans and specifications to the onsite inspection of construction or the monitoring and control of construction operations are classified in the [Construction Control Series, GS-0809](#).
6. Positions which apply an intensive, practical knowledge of the characteristics, properties, and uses of equipment to: (1) develop, analyze, and provide specialized information to those who design, test, produce, procure, supply, operate, repair, or dispose of the equipment; and/or (2) develop, install, inspect, or revise equipment maintenance programs and techniques are classified in the [Equipment Specialist Series, GS-1670](#).

## TITLES

Quality Assurance Specialist is the basic title for all nonsupervisory positions in this series. For positions that meet the criteria of the [General Schedule Supervisory Guide](#), the basic title is Supervisory Quality Assurance Specialist.

Where appropriate, a parenthetical specialization may be added to the basic position title at grade GS-9 and above. The specializations listed below reflect broad commodity, industry, or process areas. Considering the very wide range of products involved, it is not feasible to identify all of the specific items that may exist in each specialization.

The parenthetical designator should be selected on the basis of that specialization which most closely reflects the paramount product knowledge required. The specializations aid in recruitment, even though some positions may be concerned only with specific products within the specialization and require highly specialized knowledge and skill. Recruitment for such positions should consider the specific knowledge and skill requirements of the position and the appropriate use of selective placement or quality ranking factors. The use of these factors is discussed further in the qualification standard for this occupation.

Some quality assurance positions may be concerned with a variety of specializations where none is paramount, or perform duties of such an unusual nature that it would be inappropriate to include the position within one of the authorized specializations. In such cases, only the basic title should be used. The approved specializations do not affect agency use of organizational titles for internal administration, program management, or similar purposes.

### Authorized Specializations

Aerospace - Aerospace systems and primary structural components of the system, including launch vehicles and spacecraft.

Aircraft - Fixed and rotary wing aircraft systems including structural components of the total system such as airframes, wings or stabilizers.

Ammunition - Conventional ammunition and special weapons e.g., chemical and biological weapons), their components, propellants, and explosive devices, including quality assurance activities related to the serviceability and maintenance of munitions.

Automotive - Trucks, cars, buses, special-purpose vehicles (e.g., fire-fighting equipment, mobile maintenance shops, reconnaissance vehicles), track or crawler vehicles, and materials-handling equipment.

Chemicals - Chemicals and chemical products, including liquid and gaseous fuels, lubricants, and special purpose petroleum items.

**Clothing** - Clothing, footwear, individual equipment items, and the materials from which produced, including leather, textiles, plastics, rubber, and natural and synthetic fibers.

**Computer Software** - Computer software used in manufacturing, maintenance, and operational applications to design, manufacture, test, and inspect a product or to provide guidance, control, and processing logic in an integrated system.

**Electrical** - Electrical equipment, apparatus, and instruments, including motors, generators, transformers, switches, and controls.

**Electronics** - Electronic equipment and instruments, including radio and television equipment, radar, sonar, navigational computers, missile guidance equipment, and electro-optical equipment.

**Materials and Processes** - Raw, processed, or fabricated materials including lumber, metals, ores, minerals, rubber, and fibers and specialized industrial processes such as heat treating, electroplating, welding, painting, laminating, bonding, and nondestructive testing when the material or process involved is paramount.

**Mechanical** - Equipment, machines, and instruments powered by heat or mechanical energy, including steam and internal combustion powerplants, industrial and ordnance equipment, heating and air-conditioning equipment, machine tools, and mechanical equipment not included under other specializations.

**Metrology** - Electronic, electrical, radiological, mechanical, and optical test, measurement, and diagnostic equipment and systems.

**Nuclear** - Reactor cores, pressure vessels and closures, control and drive mechanisms, reactor fuel materials, or other items of the primary reactor system.

**Preservation and Packaging** - Preservation, packaging, and packing processes, including application of preservatives, packing and crating methods, protective practices, and performance testing.

**Shipbuilding** - Vessels and marine equipment, structures, and systems.

**Subsistence** - Subsistence items, including fresh, frozen, canned, or dehydrated foods. (This specialization primarily covers positions in acquisition activities.)

## OCCUPATIONAL INFORMATION

### Background

Quality assurance involves a planned, systematic approach designed to provide adequate confidence that products will conform to established requirements throughout the product's life cycle. (For editorial convenience, the term "product" is used in this standard to denote any of the items, equipment, or systems developed, produced, and acquired by Federal agencies to carry out their missions and functions.) Characteristic of all quality assurance programs are three basic principles:

1. Final responsibility for quality rests with the organizations that design, develop, produce, maintain, store, and issue the product. Quality assurance supports these activities by ensuring that adequate quality provisions are planned, developed, and implemented.
2. Quality cannot be "inspected" into the finished product. Quality assurance focuses its activities on the identification, prevention, and correction of unsatisfactory conditions or elements which influence acceptability of the end product.
3. Quality is defined in terms of specific requirements to be met. Such requirements must be effectively communicated to and understood by those activities whose operations may, in any way, influence the quality of the product in terms of its use, interchangeability, form, fit, function, or safety.

In recent years a number of factors have exerted a significant influence on quality assurance programs in the Federal Government such as:

- Advances in industrial technology (e.g., automation of manufacturing, test, and inspection functions);
- Increased product sophistication and material complexity such as laser applications, microminiaturization, and computer software;
- Greater concern for product reliability, user satisfaction, and safety;
- Increased emphasis on product economy, timely delivery of products, and the cost of quality;
- More stringent quality and reliability requirements; and
- More involvement of quality assurance specialists early in the product development phase.

These and other factors have contributed overall to increased systemization of agency approaches to quality assurance. This trend is illustrated in contemporary definitions of quality assurance as

- a planned and systematic pattern of all actions necessary to provide confidence that adequate technical requirements are established; products and services conform to established technical requirements; and satisfactory performance is achieved.

### *Knowledge and Skill Required*

Quality assurance work in general requires application of the following kinds of knowledges and skills:

- Knowledge of quality assurance/control methods, principles, and practices, including statistical analysis and sampling techniques;
- Knowledge of pertinent product characteristics and applicable production maintenance, or repair methods and processes;
- Knowledge of inspection, test, and measurement techniques;
- Knowledge of the relationship of quality assurance to other activities such as contract administration, engineering, supply;
- Skill in interpreting and applying product specifications, technical data, regulations, policy statements, and other guideline materials;
- Skill in conducting studies and investigations, problem analysis, and developing logical and documented recommendations;
- Skill in written and oral communications; and
- Skill in establishing effective interpersonal relationships.

### *Functional Orientation of Quality Assurance Programs*

Quality assurance specialists apply the above knowledges and skills to programs which may be categorized in terms of the functional activities or agency missions they support. The major characteristics of these quality programs and the principal techniques and procedures employed to assure product quality are discussed below. Some highly specialized areas or commodities may combine elements of more than one of the following programs. For example, quality work concerned with ammunition items may involve functions which are characteristic of supply quality assurance insofar as depot or storage functions are concerned along with functions typical of maintenance quality programs.

- . Acquisition quality assurance (In-plant) - This function ensures that contractors fulfill their responsibilities for controlling product quality in accordance with contractual requirements, and that finished products conform to specifications. It involves both the procurement of new



products as well as the procurement of maintenance and overhaul of existing products, e.g., aircraft systems. The extent of the contractor's responsibility, in terms of quality control procedural and documentation requirements, depends generally on the nature of the products being procured. For example, for less complex products the contractor may be held responsible for the inspection and testing of the items before offering them to the Government. For complex products the contractor is typically responsible for the development of a quality control or inspection program which meets the provisions of Government specifications and ensures product quality from receipt of raw materials to the shipment of the finished product. Specialists concerned with acquisition quality assurance programs at contractors' facilities are involved in such activities as:

- Reviewing the contractor's production activities and capabilities in light of contract quality requirements;
- Insuring that the contractor understands the contractual requirements;
- Reviewing the contractor's written quality or inspection procedures (when required by the contract) for adequacy;
- Evaluating the implementation and effectiveness of the contractor's quality or inspection system including contractor-developed sampling plans;
- Analyzing quality data to detect unsatisfactory trends or weaknesses in the contractor's quality or inspection system;
- Verifying by test or inspection that products offered to the Government comply with contractual requirements before they are accepted;
- Requesting corrective action by the contractor when inadequacies are detected in the contractor's inspection system or quality program;
- Coordinating the disposition of nonconforming products and materials;
- Investigating customer complaints and deficiency reports, and providing identification of causes to appropriate activities;
- For contract maintenance of major items, reviewing and recommending approval/disapproval of work over and above that contractually authorized; and
- Where applicable, performing quality assurance support activities at the subcontract level.

B. Maintenance and manufacturing quality assurance - This function is concerned with the quality of products manufactured, maintained, overhauled, or modified in Government-owned and

operated activities, such as Army depots, shipyards, and aircraft rework facilities. Major quality functions include:

- Participation with production, engineering, and other activities in developing plans and procedures for assuring quality and reliability of products;
  - Reviewing work instructions, technical data to identify characteristics critical to product acceptability, and providing inspection and test procedures;
  - Monitoring quality of materials and supplies required to support production activities;
  - Conducting audits of products and processes for conformance to specifications and to detect processing and technical documentation deficiencies and recommending corrective action, including establishment of acceptable quality levels and statistical techniques;
  - Verifying product quality using sampling inspection or, when appropriate to the characteristics involved or pertinent quality history, more intensive product inspection techniques;
  - Investigating customer complaints and deficiency reports, and providing identification of causes to appropriate activities;
  - Monitoring programs for controlling the accuracy of test and measuring equipment;
  - Evaluating procedures for maintaining control of drawings and technical data;
  - Coordinating the disposition of nonconforming material; and
  - Analyzing quality data to detect unsatisfactory trends or conditions and weaknesses in the quality system.
- C. Supply quality assurance - This function is concerned with product quality relative to the operations and procedures for receipt, storage, preservation, packaging, packing, handling, and issue of material. The major functions of this activity include:
- Reviewing and evaluating supply systems operations and procedures through periodic audits and surveillance inspections;
  - Identifying for corrective action deficiencies caused by improper storage methods, extended periods of storage, or inherent deterioration characteristics of the material;
  - Evaluating preservation and packaging procedures, processes, and equipment in supply and storage operations;

- Verifying that products offered to the Government comply with contractual requirements before they are accepted;
  - Analyzing quality data and reporting on the quality level achieved in supply and storage operations;
  - Evaluating characteristics affecting usability of material in stores;
  - Investigating customer complaints and deficiency reports and providing identification of causes to appropriate activities;
  - Coordinating disposition of defective or nonconforming products; and
  - Controlling the accuracy of test and measuring equipment used in supply operations.
- D. Staff quality assurance - Staff quality assurance activities are applicable to maintenance and manufacturing, supply, and acquisition quality programs and may exist - in all three functions. Since they relate and are applicable to all phases of the product life cycle, these activities may be concentrated in a separate program or organization at the command or program manager level in some agencies. For example, positions organizationally designated as product quality managers or quality assurance managers may be concerned with quality program planning and implementation for a weapons system, beginning early in the development phase and continuing throughout the system's life cycle. Staff specialists are involved in a variety of activities concerned with:
- A particular product or product line, such as one or more models of tactical vehicles;
  - A broad commodity area, such as electronics equipment;
  - A specialized technical area, such as materials treatment/ processes; or
  - A particular quality management function, such as developing program policies and procedures.

Specific functions performed by quality assurance specialists in a staff capacity vary from agency to agency and according to the specific quality program involved. Some positions serve as technical specialists for a commodity or group of products and furnish support and guidance to field activities on technical problems, and develop or improve technical quality assurance procedures, plans, and programs. Other positions may involve development of quality program policies and procedures, quality assurance systems, and techniques of management.

Quality assurance specialists in systems or equipment acquisition activities are concerned with program planning and implementation of quality assurance functional activity throughout the procurement cycle. Major tasks related to this activity include:

- Recommending or specifying appropriate levels of quality control for inclusion in contracts;
- Preparing or reviewing quality assurance provisions of product specification;
- Assessing the contractor's design and development activities to ensure adequate consideration of productibility, inspectability, testability, and long-term user satisfaction;
- Participating in fact-finding and negotiation of contracts and contract changes to ensure reasonable and proper levels of contractor quality effort are established and that contractual agreements are consistent with the desired product quality level; and
- Defining critical system elements and product quality characteristics and ensuring adequate controls over materials, sources, and manufacturing.

### Work Assignment Characteristics

The overall objective of quality assurance is to ensure that quality considerations are addressed and requirements are achieved at each stage of the product's life cycle. In the production cycle, for example, quality assurance specialists ensure that design intent is carried out and finished products conform to technical requirements. Careful attention to quality requirements at each stage ensures that products perform as intended with reliability when the products are used.

Quality requirements vary according to the nature of the product involved-the complexity of the item, its application or end-use, and the technical requirements (specifications) involved. Less complex products typically do not require extensive quality controls due to such factors as: the relatively small number of standard manufacturing or treatment processes involved; the item has few if any component parts; the item may be manufactured to commercial specifications; quality characteristics may be verified by routine measurements or tests; or the consequences of failure of the item are limited.

On the other hand, complex products typically require extensive controls and checks to ensure quality due to such features as: the item consists of a number of components or subassemblies, each of which may undergo several steps in manufacturing; the item requires advanced treatment processes and special testing; conformance to requirements must be established progressively since overall quality characteristics are not readily discernible by inspection of the end item; and the consequences of failure are significant.

Thus the nature of the product involved determines, to a significant degree, the depth and scope of quality programs and activities necessary to ensure product acceptability. These product-related factors in turn influence the knowledges and skills required, and the nature and difficulty of tasks, processes, and methods involved in the work.

While this relationship between the nature of the product involved and the level and scope of quality assurance activities applies generally, it must also be considered in the context of program functions and the requirements of individual work situations. For example, assignments concerned with complex products in the development stage involving application of advanced design concepts, state-of-the-art technologies, changing specifications and requirements, and numerous, important quality characteristics may impose requirements on the quality assurance specialist that are significantly different from those encountered in follow-on procurement of the item where specifications and requirements are filmed-up and considerable experience has been gained with respect to quality related problems. Similarly, the considerations for achieving a quality product during the production stage (i.e., ensuring adherence to design intent) are different from those encountered in storage and supply operations.

The influence of the product-related factors discussed above is treated in the factor level descriptions which follow. For editorial convenience, the typical levels of product complexity referred to in the standard are defined below. The definitions identify key features of the product which influence such factors as the level of knowledge and skills required, the difficulty involved in applying guideline material, or the nature and intricacy of the tasks performed. The definitions are intended as conceptual frames of reference and for that reason are presented without specific illustrations.

Complex Product. - A product with most of the characteristics described in either A or B below:

A. The product itself is complex or requires complex production techniques or manufacturing processes as illustrated by the following features:

- The end item is comprised of a number of components and subassemblies, undergoes many steps in the manufacturing process, and has many critical quality characteristics which must be monitored at various points in the production phase.
- The product has complex (unique or advanced) design features, or a design subject to engineering changes and modifications during production.
- General or envelope specifications apply requiring many judgmental decisions concerning tolerances and/or acceptability.
- The product requires advanced or specially designed material treatment processes, testing methods, and preservation, packing, and packaging techniques.
- Inspection involves complicated setups, close tolerances, many interrelated dimensions and specifications and the use of elaborate measuring equipment or instrumentation that has been specially designed or modified for the item involved.

OR

- B. The product requires highly specialized knowledges to ensure acceptability (even though, in some cases, the product may appear deceptively simple) as illustrated by the following features:
- The product has a wide range of quality characteristics or combination of characteristics requiring exacting sensory determinations and fine distinctions as to acceptability.
  - Measurements are very subjective and require a high order of skill and judgment in the application of standards and specifications.
  - Guideline material is subject to interpretation as many terms cannot be precisely or objectively defined, and many characteristics cannot be objectively measured or evaluated.
  - Inspections require a knowledge of intrinsic product or material characteristics, and considerable skill in detecting internal defects by evaluating external characteristics and evaluating quality variations caused by environmental or operational conditions.
  - Inspections require a sophisticated knowledge of a variety of complicated industrial processes or production methods to identify accurately the cause of defects.

Less Complex Product - As used in this standard, this term denotes a product with the following characteristics:

- The product is covered by definitive specifications, with a limited number of quality characteristics.
- There are relatively few interrelated parts and/or combinations of quality factors to be considered.
- Production involves a limited range of manufacturing processes, the use of standard material treatment processes, preservation, and packaging techniques.
- The product can be inspected by use of a variety of standard precision measuring devices and/or a somewhat restricted number of sensory determinations or subjective judgments.

## GRADING POSITIONS

The grade level criteria in this standard cover nonsupervisory positions GS-5 and above. Supervisory positions should be evaluated by reference to the [Supervisory Grade-Evaluation Guide](#), Part II.

This standard uses the Factor Evaluation System format, but does not provide benchmarks. Positions should be evaluated on a factor by factor basis using the factor level descriptions provided. Only the designated point values may be used. The absence of a description for a particular factor level does not preclude the use of that level in grading positions. For example, while grade GS-5 reflects the typical trainee work situation for this occupation, entrance positions may be established at a lower grade to provide career mobility. More complete instructions for evaluating positions are contained in the [introductory material for the Factor Evaluation System](#).

## GRADE CONVERSION TABLE

Total points on all evaluation factors are converted to GS grade as follows:

GS Grade	Point Range
5	855-1100
6	1105-1350
7	1355-1600
8	1605-1850
9	1855-2100
10	2105-2350
11	2355-2750
12	2755-3150
13	3155-3600
14	3605-4050
15	4055- up

## FACTOR LEVEL DESCRIPTIONS

### FACTOR 1, KNOWLEDGE REQUIRED BY THE POSITION

This factor measures the nature and extent of information or facts which the employee must understand to do acceptable work (e.g., steps, procedures, practices, rules, policies, theories, principles, and concepts) and the nature and extent of the skills needed to apply those knowledges. To be used as a basis for selecting a level under this factor, a knowledge must be required and applied.

Additional information about the knowledges and skills applicable to quality assurance work is contained in the section titled Occupational Information.

NOTE: This factor is closely related to Factor 4, Complexity. For this reason the illustrations used for this factor reference illustrations of the same or a similar work situation under Factor 4.

*Level 1-5 - 750 points*

Positions at this level require a foundation of basic skills and underlying knowledge, typically acquired through appropriate experience in manufacturing, maintenance, or similar work, or equivalent education and training. This foundation includes skill in interpreting technical data, data analysis, report writing, interpreting regulations and other guideline material; dealing with other individuals; and a practical understanding of the role of quality assurance in relation to the mission of the organization. These skills and knowledges are applied in performing training Assignments designed to familiarize the specialist with basic quality assurance procedures and techniques, pertinent regulations and program requirements, quality characteristics of the product involved, and manufacturing processes and techniques.

OR

Equivalent knowledge and skill.

*Level 1-6 - 950 points*

In addition to the knowledges and skills described at Level 1-5, positions at this level require:

Knowledge of established techniques, regulations, and requirements related to a quality assurance functional program (see Occupational Information), and skill in applying this knowledge to plan and perform a variety of assignments of moderate scope and complexity for which there are precedents;

- Demonstrated skill in interpreting, explaining, and applying technical requirements and specifications to quality problems encountered in such activities as procedures evaluation, process audits, product inspections, or investigations of defective material;
- Knowledge of products having characteristics which make them less complex, including associated manufacturing processes and inspection techniques;
- Practical knowledge of conventional factfinding or investigative techniques, and skill to develop, analyze, and evaluate facts relative to unsatisfactory conditions or trends, and to prepare documented reports of findings; and
- Demonstrated skill in maintaining effective working relationships in the activity served by the quality assurance organization.



The above knowledges and skills are equivalent to those gained by closely related work experience.

OR

Equivalent knowledge and skill.

Illustrations:

1. Performance of the work requires knowledge of established procedures and techniques for quality assurance and skill in applying established statistical quality control plans and methods to operations concerned with the overhaul of a specific model of aircraft jet engine. The specialist applies knowledge of the particular engine model involved, applicable quality requirements, and the repair/maintenance processes or operations involved to the development of critical quality characteristics lists, monitoring and analyzing quality levels achieved, and recommending action to correct deficiencies and unsatisfactory trends. Applies knowledge of related functional and administrative activities (e.g., production, engineering, scheduling) and skill to coordinate work operations. Uses skill in investigating shop-generated problems and in analyzing defective products. (See illustration #1 for Level 4-3.)
2. As a member of the resident Government quality assurance staff at a contractor's facility, the specialist applies knowledge of established plans and methods for ensuring compliance with contract quality requirements for the production of electronic equipment. Uses skill in applying this knowledge to plan and accomplish a variety of assignments such as reviewing contractor operations and processes for compliance with quality procedures, performing product inspection, investigating reports of defective material, and coordinating disposition of nonconforming material. Applies knowledge of the electronic equipment involved, applicable quality requirements, and manufacturing techniques and processes involved, to review contractor operations for compliance with requirements and to recommend corrective action on deficiencies encountered. (See illustration #2 for Level 4-3.)
3. The specialist utilizes knowledge of established techniques, procedures, and requirements concerning depot supply and storage operations and methods, and skill in applying standard statistical techniques and quality assurance methods to perform surveillance of operations, special audits of problem areas, and investigations of customer complaints on material discrepancies/deficiencies. Applies knowledge of product standards, characteristics of products/commodities involved, and technical data (e.g., storage standards, preservation and packaging specifications) to analyze quality data and develop reports on quality levels achieved, to identify specific problem areas, and to recommend corrective action. (See illustration #3 for Level 4-3.)

4. The specialist applies essentially all of the following knowledges and skills in connection with surveillance of operations involving conventional ammunition items, guided missile equipment, or other explosive items at a military field activity.
  - Knowledge of agency regulations, procedures, and work methods governing storage, handling, shipment, preservation, and packing of the items. Uses skill in applying these knowledges to perform such assignments as: (1) surveillance inspection of items in storage including determinations as to adequacy and safety of storage operations and facilities; (2) receipt inspection of items including nondestructive testing, functional testing, and special inspections as required; (3) inspection and approval of transportation conveyances for suitability, loading, blocking, and bracing; and (4) verifying that storage and transportation operations are conducted safely and in accordance with appropriate procedures.
  - Knowledge of technical requirements, work procedures, and quality assurance methods governing maintenance, modification, renovation, or disposal of assigned items and skill to: (1) advise depot officials in the planning of munition projects with regard to the safety of planned methods; (2) monitor operations to assure that proper procedures are followed, that work is performed in accordance with applicable specifications, and that safety precautions are observed; (3) prepare and review the quality assurance portion of standard operating procedures for munition operations; (4) assure disposal operations are conducted in accordance with procedures; and (5) exercise judgment concerning ammunition serviceability. (See illustration #4 for Level 4-3.)
5. At an aircraft maintenance facility, the specialist applies knowledge of operating practices and procedures related to the rework processing of aircraft systems and components to verify by work document review, materials and procedure checks, and onsite surveillance that essential quality requirements have been met.

Applies knowledge of specific product characteristics and attributes, including associated test procedures and equipment to detect deficiencies in various production/rework processing areas. This knowledge is used in the performance of such functions as conducting verification actions to monitor production operations and performing audits to verify the condition of components and equipment and adequacy of shop facilities. Investigates deficiencies and initiates corrective action.

The duties require a knowledge of the practices, procedures, and responsibilities of the various production and support departments within the facility and skill to detect conditions which may compromise quality, e.g., errors in specifications or quality certification actions by production personnel.

The specialist applies knowledge of safety procedures associated with rework operations to ensure that unsafe practices or equipment are identified and do not contribute to the degradation of quality and reliability of the products. (See illustration #5 for Level 4-3.)

*Level 1-7 - 1250 points*

Quality assurance specialist positions at this level require:

- Comprehensive and thorough knowledge of the full range of principles, concepts, and methodology related to one or more quality assurance functional programs, and considerable skill in applying this knowledge to the planning and accomplishment of a variety of difficult and complex work assignments.
- Broad knowledge of a range of complex products including pertinent quality characteristics, manufacturing methods and techniques, special processes, interrelationship of functional parts and subassemblies, measurement and test techniques, and skill in developing plans and approaches calculated to insure effective control of product quality.
- Broad knowledge of the practices, policies, and procedures of related functional and administrative activities such as contract administration, engineering, production, procurement, and supply and skill in effecting appropriate interface/coordination of quality assurance plans and programs with these activities.
- Thorough and detailed knowledge of and skill in applying various methods and techniques for investigating, analyzing and effecting corrective action on complex quality problems.

-- or, for some positions --

- Comprehensive knowledge of a broad product area (e.g., electronic and electrical equipment, or aerospace equipment, components, and systems) including: product specifications and standards; production methods and processes required to assure product quality; special material processes and treatments; use of specialized inspection and test equipment; and preservation, packaging, and packing techniques. Skill in applying this knowledge to the evaluation and resolution of complex quality problems in the role of a technical specialist/consultant to operating activities.

OR

Equivalent knowledge and skill.

Illustrations:

1. At a contractor's facility, the specialist applies the following knowledges and skills to the administration of quality assurance provisions of contracts for complex mechanical, electrical, or electronic equipment or systems.
  - Extensive knowledge of acquisition quality assurance concepts, principles, methods, and practices and skill to design, plan, and implement an effective and economical quality assurance program.
  - Comprehensive knowledge of the assigned commodity including product characteristics; production methods; special processes; interrelationship of parts, components, and subassemblies; inspection and test techniques; and preservation, packaging, and packing methods to determine conformance of product to technical requirements of the contract and related specifications.
  - Extensive knowledge of a wide range of methods, principles, and practices to evaluate the contractor's conformance to contractual quality requirements and to assure that procedures adequately control the quality of the product.
  - Knowledge of a wide range of methods, principles, and practices directly related to the quality control/quality assurance fields including such areas as statistical analysis, control and sampling; and quality data analysis and evaluation to determine contractor compliance with the many associated aspects of quality control.
  - Broad knowledge of policies and procedures of other functional and administrative areas such as contract administration, production, or property administration to provide support services for these organizations. (See illustration #1 for Level 4-4-.)
2. At an aircraft maintenance and rework facility, the specialist applies the following knowledges and skills to develop and implement quality and reliability plans and systems for complex aeronautical systems and equipment.
  - Comprehensive knowledge of assigned aeronautical systems and equipment including critical quality characteristics, manufacturing methods, special processes, functional relationships among components and subsystems, and test and measurement techniques. Skill in applying this knowledge to planning and developing quality systems for the facility.
  - Broad knowledge of operating policies and procedures of both internal and external quality-related activities such as program management, contractors production engineering, workload planning, procurement, or supply and skill to coordinate quality assurance plans and functions with these activities.
  - Skill in establishing and maintaining effective interpersonal relationships throughout the various departments and with using activities. (See illustration #2 for Level 4-4-.)

3. The specialist applies the following knowledges and skills in connection with projects for the acquisition of avionics systems and subsystems.
  - Comprehensive knowledge of quality assurance/control concepts, principles, and practices, and skill to plan, develop, and implement quality programs for assigned systems.
  - Broad knowledge of agency acquisition functional responsibilities and procedures and the role of quality assurance to integrate/ coordinate quality program efforts with other functional disciplines such as engineering, procurement, manufacturing, configuration management, logistics, and test and evaluation.
  - Knowledge of manufacturing methods, processes, and materials associated with avionics systems and considerable technical skill in applying this knowledge to the assessment and evaluation of contractor quality control plans and systems.
  - Skill to Plan and conduct technical studies, analyze performance and quality data, and to develop sound recommendations for correction of product and quality system deficiencies. (See illustration #3 for Level 4-4.)
4. In a staff role, the specialist applies the following knowledges and skills in the development, coordination, and implementation of quality systems supporting the activity's program for overhaul, refurbishment. procurement, and proofing of undersea weapons systems, underwater range equipment, and testing apparatus.
  - Extensive knowledge of quality assurance methods, procedures, and systems and skill: to serve as advisor to the director of quality assurance on their application, impact, and effectiveness in supporting activity programs; to consult with management officials of other activity departments regarding their quality responsibilities, systems, and problems; to investigate activity quality capabilities and resources; and recommend policy changes or adjustment of resources for specific situations.
  - Comprehensive technical knowledge of the activity's mission and responsibilities relative to maintenance, repair, testing, and inspection of underwater weapons systems and associated instrumentation and skill to analyze and evaluate procedural documentation for these programs . This knowledge is applied to insure that the activity quality efforts are compatible with existing policy guides and to provide assistance to other activity departments relative to acceptable methods, documentation, or corrective action.
  - Thorough knowledge of the agency's policy guidelines along with knowledge of the optional methods and procedures of external organizations (such as engineering activities, project offices, or contractors) and skill to review and interpret program directives and technical documentation. Applies this knowledge in establishing quality system interface and coordination, developing the necessary changes to existing activity programs,

preparing activity procedural guides and instructions, and coordinating implementation efforts. (See illustration #4 for Level 4-4.)

*Level 1-8 - 1550 points*

Mastery of quality assurance concepts, operating principles, and methodology applicable to a major agency program or mission area (e.g., the quality assurance program providing support to agency maintenance activities). This includes expert knowledge of organizational missions, objectives, and procedures; the relationship with other program areas (e.g., acquisition or logistics); and the regulatory framework in which the program operates. Exercises a very high degree of skill in applying these knowledges to the analysis and resolution of very complex or sensitive problems related to quality assurance, and in applying new developments and methodologies to assigned program areas.

Utilizes technical expertise and broad experience in assigned program area in dealing with extremely broad and complex quality problems which are further complicated by such factors as the wide dispersion of organizations and activities involved, and the multiplicity of authorities, policies, and controls. The results of problem research/ study are incorporated into program directives covering new and innovative conceptual approaches, technologies, and methods for enhancing the assessment of quality performance, and identifying areas for improvement.

OR

Equivalent knowledge or skill.

*Illustration:*

In the headquarters of a Defense contracting agency, the employee serves as a staff specialist exercising final authority for quality assurance matters in a major commodity or program area (e.g., petroleum products, computer software, preservation and packaging, clothing and textiles, or foreign military sales). The employee uses the following knowledges and skills:

- Expert knowledge of quality assurance principles and methods to develop agency plans, policies, and procedures for acquisition quality assurance systems to be used by specialists in field contracting organizations.
- Knowledge of the agency's mission, objectives, procedures, and the relationship of quality assurance with contract administration, procurement, storage, and distribution of the commodity to interpret and adapt broad management requirements to the specific commodity or program area.
- Technical knowledge and extensive experience in the program area to conduct staff studies of complex or unprecedented quality assurance problems, the solution of which

may require the development of new techniques and procedures or changes in agency policy.

- Skill in defining problems, analyzing alternatives, and recommending solutions to assess field performance, provide technical advice to field personnel and headquarters staff offices, and serve on interagency committees or task groups.

## **FACTOR 2, SUPERVISORY CONTROLS**

This factor covers: (1) the nature and extent of direct or indirect controls exercised by the supervisor; (2) the employee's responsibility; and (3) the review given of completed work. Controls are exercised by the supervisor in the way assignments are made, instructions are given to the employee, priorities and deadlines are set, and objectives and boundaries are defined. Responsibility of the employee depends upon the extent to which the employee is expected to develop the sequence and timing of various aspects of the work, to modify or recommend modification of instructions, and to participate in establishing priorities and defining objectives. The degree of review of completed work depends on the nature and extent of the review, e.g., close and detailed review of each phase of the assignment; detailed review of the finished assignment; spot check of finished work for accuracy; or review only for adherence to policy.

Senior quality assurance specialists are frequently assigned planning and coordinating responsibilities for projects of considerable scope and complexity. Although many of these senior specialists do not perform the full range of supervisory functions which would cause them to be designated as such, they are often placed in a leadership role over other specialists. In evaluating positions in these situations, it is necessary to consider not only the specialist's relationship to their designated first-line supervisor, but also the specialist's relationship with senior specialists serving as project leaders, to gain a complete understanding of the supervisory control over the work.

In some instances, the specialist's regular duty station may be physically separated from that of the immediate supervisor. For example, the specialist may be assigned a number of contractor facilities for the purpose of performing in-plant quality assurance functions. Other assignments may require the specialists to work outside their immediate office for intermittent periods, e.g., performing liaison at production or test facilities or investigating complaints of defective material at the user's installation. These kinds of situations should be analyzed carefully in terms of:

- the extent to which supervisory assistance or control of the work may be provided via telephone contact;
- extent to which work planning may be controlled by established work instructions or guideline material;
- requirements that proposed actions be cleared with the supervisor before they are implemented; or



- periodic reporting requirements on work activities and review of accomplishments.

#### *Level 2-1 - 25 points*

The supervisor or a higher-grade specialist assigns specific tasks (e.g., routine inspections of limited scope, the review and summarization of specific data, or the maintenance of quality assurance records) and provides detailed instructions on the sequence of the work and the methods to be used.

The specialist completes assignments as instructed. The supervisor or higher-grade employee is available to provide guidance on any problems encountered, which are not covered by the original instructions.

Completed tasks (e.g. statistical summaries, inspection reports) are checked closely for accuracy, adequacy, and adherence to instructions.

This level is typical of trainee positions.

#### *Level 2-2 - 125 points*

The supervisor or a higher-grade specialist makes continuing or individual assignments by indicating the general nature and scope of the task, purpose of the work, and the anticipated results. Assignments are typically defined segments of larger projects, or assignments are structured to increase the specialist's knowledges and skills in the practical application of quality assurance methods and techniques. For new or unusual assignments the specialist is provided additional guidance concerning procedures to be followed, approaches to be taken, or available reference material, e.g., the method of documenting nonconformances or the approach to be used in developing procedure review checklists.

The specialist completes recurring assignments without additional instructions. The supervisor or a higher-grade specialist is available for advice and assistance on problems and unfamiliar situations not covered by instructions.

The supervisor may check with the specialist during the performance of the work to insure that the assignment is progressing correctly.

Completed work assignments are reviewed for technical accuracy, thoroughness, and compliance with instructions and guideline material. Review of recurring assignments becomes less detailed commensurate with the specialist's progress in acquiring job-related knowledges and skills.

#### *Level 2-3 - 275 points*

The supervisor outlines objectives of new assignments and provides general information on priorities, any unusual requirements, time constraints, and coordination with other projects. The



objectives of the assignment may also be obtained by reference to applicable project documentation or contractual material. Minimal work instructions are provided for continuing assignments (e.g., to a particular product line or plant production area) and assignments which are similar to ones previously performed. The supervisor or a senior-level specialist is available to assist in unusual situations such as providing guidance on technical problems not previously encountered or to advise on situations which are not covered by established operating procedures.

The specialist plans and carries out all of the successive operations to complete assignments without direct technical assistance from the supervisor. Selects and applies established quality assurance operating procedures, accepted methods and practices (e.g., statistical sampling, surveillance and auditing procedures), utilizing generalized instructions, procedural guides, or precedent material from similar assignments and makes independent determinations on product or procedures acceptability. Initiates reports on defective products, processes, or other situations affecting quality and approves/ disapproves or coordinates corrective action.

Supervisory review is accomplished through reports and discussions between the specialist and the supervisor, covering actions taken or recommended and assignments completed. Completed assignments are generally evaluated for conformance to established policies and quality assurance program requirements, timeliness of activities, and soundness of technical decisions. Specific work products may be reviewed through occasional checks of inspection reports or reports of investigations and audits. The specific technical methods and procedures used by the specialist to accomplish the work are not reviewed in detail.

#### Illustrations:

1. At an aircraft maintenance activity, the specialist performs a variety of assignments to control the quality of material and processes, verifying by technical documentation review, audits, and onsite surveillance that essential quality requirements have been met. The supervisor provides general guidance on objectives of the assignment, time limitations, or other priorities, and is available to assist with unusual situations or problems such as those pertaining to a new product or process which may require different evaluation procedures.

The specialist plans and carries out all of the successive operations to complete the assignment without direct technical assistance from the supervisor, selecting and applying established quality assurance operating procedures and methods relative to statistical sampling, surveillance, and auditing. Activity operations and functions covered in the assignments include machine shop operations, aircraft pneumatic components rework and testing, plating, preparation and finish application on aircraft and ground support equipment, and the rework and testing of aviation ordnance and fire control equipment. The specialist initiates reports on defective products, processes, or other situations affecting quality and recommends corrective actions.

Supervisory review of completed assignments is made to evaluate technical soundness of recommendations for corrective action, and their conformance to activity/agency quality policies and requirements.

2. The specialist is assigned to conduct periodic evaluations of the quality control system for a maintenance and storage activity, (Material procured, received, stored, issued, and maintained are electronic and guided missile major and secondary items.) The supervisor provides general information pertaining to objectives, deadlines, and advises the specialist on potentially controversial or precedent situations which may be encountered.

The specialist plans the necessary steps to complete the evaluation, which may cover a number of maintenance shops, a particular product, a supply function or a particular process operation, e.g. tear-down or painting. Evaluations cover such aspects as effectiveness of the written quality control system, verification that personnel are adhering to the system, materials utilized conform to specifications, efficiency of production work processes, effectiveness of inspections, and quality of workmanship. Utilizes quality assurance evaluation checklists and records the results. Analyzes findings to determine the degree of effectiveness of the system and recommends changes to eliminate deficiencies.

The results of completed evaluations are submitted in summary form for review by the supervisor. This review focuses primarily on the technical soundness of recommended corrective action and the need to coordinate changes with higher organizations. Supporting details such as the sampling plans and techniques used or the particular method of evaluation are not reviewed.

3. At a manufacturing facility, the specialist performs quality planning assignments for production programs involving such tasks as: preparing inspection plans and numerical control inspection programs for coordinate measuring machines; preparing qualification and test procedures for special processes; conducting quality audits on materials; and verifying effectiveness of controls over gages and inspection equipment. The supervisor makes general assignments to the above functions, outlining objectives and indicating deadlines for completing the work. The supervisor is generally consulted to resolve controversial situations (e.g., conflicting policy or technical requirements) and problems relative to obsolete guides or lack of precedents.

The specialist plans and carries out the assignments on own initiative in accordance with work instructions. Most of the problems encountered may be resolved by reference to previous work instructions or established quality assurance procedures and guides. Completed quality planning assignments are evaluated for technical soundness and proper application to requirements. The results of evaluations or audits are checked for appropriateness in terms of corrective action recommended. The details of how the plans were developed or the specific methods used in the evaluations are checked only on an exception basis.

*Level 2-4 - 450 points*

The supervisor provides assignments in terms of overall objectives and any limitations on the scope of the work. The specialist consults with and advises the supervisor on such aspects as priorities, staffing, or funding requirements, and project milestones.

The specialist plans and carries out assignments independently, determines the scope and level of quality activities based on the requirements, establishes priorities, interprets and applies general agency quality assurance policies and procedures, and effects coordination/consultation with other activities as required. The specialist has developed considerable expertise in quality assurance and is responsible for resolving problems involving deviations from established procedures, unfamiliar situations, or unusual requirements on own initiative, adjusting and varying the approach based on analysis of conditions/ problems encountered, making authoritative determinations on conformance with requirements, and coordinating corrective action or adjustments with the responsible activities. The specialist periodically briefs the supervisor on progress of the assignments and potentially controversial issues.

Work assignments are assessed from the standpoint of overall effectiveness of quality assurance efforts through periodic status reporting, briefings, or reviews of program documentation and accomplishments. Completed work products such as technical reports, reports of investigations, or reports of facility capability surveys are controlled for timely completion, but are generally accepted as technically sound. Controversial decisions or findings are reviewed primarily so that the supervisor can become familiar with the circumstances and determine if there is a basis for modification of operating instructions or procedures.

#### Illustrations:

1. The specialist receives assignments in the form of contracts for specific tracked or wheeled vehicle systems which are either in the development phase or currently in production. The supervisor outlines the project generally in terms of overall objectives of the assignment, policy constraints, and time-frame available.

The specialist independently develops product assurance plans which delineate time-phased quality assurance life cycle functions for assigned vehicle systems. Functions as product quality manager by maintaining surveillance over Government and contractor quality control systems for in-house and/or contractor procured or manufactured items. Develops instructions for subordinate quality assurance elements and advises on the interpretation and implementation of special quality requirements. Coordinates with other agency activities on such aspects as production testing (e.g. first article) at Government or commercial test facilities, or quality checks of vehicles destined for shipment to foreign countries.

The supervisor is kept advised of progress through periodic reviews of projects assigned. Completed technical work and product assurance plans are appraised in terms of overall performance and effectiveness in meeting required milestones and accomplishment of actions necessary to effect timely release of assigned systems for production.

2. At an area field office the specialist provides technical support and operational assistance to quality assurance specialists assigned to various contractor facilities. Typically the assignments are made in terms of a commodity area, such as mechanical equipments and products or specific contractor plants. The supervisor provides general instructions on policy objectives and operational considerations.

The specialist independently plans and carries out assignments, modifying the approach based on the particular quality assurance problems involved. Areas in which technical support is provided include interpretation and application of contract and specification provisions, production methods and processes required to assure product quality, use of special processes, and situations where guidelines or precedent material is lacking or inapplicable. Performs technical evaluations, reviews regulations, interprets requirements, and issues guidance to field personnel through the appropriate supervisory channels. As required, provides technical consultant support on controversial materials review board actions or requests for waivers or deviations.

Completed assignments are evaluated in terms of effectiveness in meeting requirements for technical support. Specific technical recommendations and interpretations related to the assigned commodity specialization are generally unreviewed.

3. The specialist serves as the resident Government quality assurance representative at a contractor facility which manufactures electronic equipment or systems, e.g., fire control systems. The terms of the contracts involved require the contractor to develop and use a documented quality control program. Assignments are received in the form of contracts for either new or follow-on production of the equipment involved. Details of work to be accomplished (i.e., contract quality and technical requirements to be controlled by the contractor) must be developed through a review of the contracts.

The specialist is responsible for independently planning and implementing the Government quality assurance program in conformance with overall objectives prescribed in agency directives. The program involves a combined effort of planning, procedures review, procedures evaluation, product verification inspections/test, and corrective action. Quality data generated from these functions enables the specialist, to adjust verification and surveillance and determine acceptability of the products and the contractor's quality control system.

Coordinates work activities with procuring agencies, outside laboratories performing failure analysis and reliability testing, and other elements concerned with contract administration such as engineering, production, or property offices. Meets with contractor quality control management to resolve most of the problems requiring corrective action. Keeps the supervisor advised of potentially controversial problems that, may require further escalation within the contractor's parent organization or within the agency's organization.

Completed work is assessed from the standpoint of effectiveness of the Government quality assurance program in achieving contract quality and technical requirements. Typically, this is accomplished through periodic program reviews.

*Level 2-5 - 650 points*

The supervisor provides only administrative guidance in making work assignments such as, identifying broad areas of agency management concern, e.g., the optimum balance between product quality and the cost of achieving the necessary control of quality. Assignments are discussed in terms of broadly defined agency missions, giving the employee wide latitude for identifying specific problems for investigation, projects to be initiated, and goals to be met.

The specialist independently designs, organizes, and carries out large scale projects or special studies related to overall program administration, or quality compliance issues in a technical program area, frequently as the agency's technical expert. The specialist independently monitors and evaluates the effectiveness of agency's programs and develops new procedures or recommendations for policy change to augment program effectiveness.

Results of the work are considered technically correct and are normally accepted without significant change. When reviewed, work products (such as proposals for major policy or program changes) are evaluated in terms of agency mission and goals and fulfillment of program objectives.

### **FACTOR 3, GUIDELINES**

This factor covers the nature of guidelines and the judgment needed to apply them. Positions vary as to the availability, applicability, and specificity of the guidelines for performance of assignments. Consequently, the constraints on judgmental demands placed upon workers also vary. For example, the existence of specific instructions, procedures, and policies may limit the opportunity of the employee to make or recommend decisions or take a particular action. On the other hand, in the absence of procedures or under broadly stated objectives, a specialist may use considerable judgment in researching literature and developing new methods.

Guidelines should not be confused with the knowledges described under Factor I, Knowledge Required by the Position. Guidelines either provide reference data or impose certain constraints on the use of knowledge.

For this occupation, guidelines include agency policy and procedural instructions, quality assurance specifications, product specifications, material standards, technical manuals and handbooks, occupational reference material, and textbooks.

*Level 3-1 - 25 points*

Specific, detailed guidelines are available for all important aspects of the assignments. These guidelines include manuals or instructions that apply directly to the assigned task, e.g., programmed instructional material, records of previous projects, or pertinent reference material.

The employee is referred to the appropriate guide to be used for each assignment and is expected to adhere strictly to the guideline material, except where specific deviations are authorized by the supervisor.

### *Level 3-2 - 125 points*

A number of specific guidelines containing established procedures for performing assignments are available, as needed. Guidelines at this level also include material specifications and standards, product drawings, technical bulletins, inspection/test procedures, and standard checklists for evaluating shop procedures and operations.

The specialist uses judgment in selecting the appropriate checklist, guide, or reference for application to the work (e.g., using annotated drawings or specifications as source documents for inspection characteristics), and in making minor changes to tailor the guidelines to specific assignments such as adjusting the number of items sampled. Where guidelines cannot be applied or significant deviations are indicated by the situation, the employee obtains guidance from the supervisor or a higher-grade specialist.

#### **Illustrations:**

1. The specialist assists a higher-grade employee who is assigned to the missile handling equipment line at a contractor's facility. The specialist receives contracts and specifications relating to specific components, and prepares or revises quality checklists based on existing checklists for components with similar characteristics. Performs surveillance using the checklists and specifications as guides, referring to the higher grade specialist any unusual inspection results or suspected specification deficiencies.
2. At a shipyard, the specialist assists a higher-grade employee with assignments to review and evaluate quality control activities. Guidelines utilized in the work consist of specific procedural documentation covering various work operations aboard ship and in the production shops. The specialist uses judgment in selecting the appropriate guide or checklist for the assignment and in checking the accuracy of the guides against planning information, e.g., specifications, plans, inspection requirements. Situations where the guidelines cannot be applied, or where the guidelines appear inadequate to evaluate the activities involved are referred to the specialist in charge of the assignment.

### *Level 3-3 - 275 points*

A number of the guidelines used in the work are similar to those described at Level 3-2. At this level, however, specialists have the additional responsibility of adapting and extending agency

procedural guides and regulations to situations encountered in planning and accomplishing the work. While agency procedural guidelines are available, due to the variety of tasks or situations which may arise in the course of the work, they may not be completely applicable to a particular assignment or provide specific guidance.

The specialist exercises judgment in interpreting general agency guides, regulations, or precedent cases and in adapting this guidance to individual situations and problems arising in the work. At this level some positions may have responsibility for preparing operating instructions applicable to the local organization, plant, or activity.

Illustrations:

1. The specialist develops the quality assurance portion of technical standard operating procedures for maintenance, modification, or overhaul of munition items, e.g., conventional ammunition items, guided missile systems, or special weapons. Tailors general maintenance work orders to actual scope of the work to be performed, depot capabilities and facilities, and operational requirements. Ensures that operations to be performed and equipment requirements are accurately reflected and that safety and quality requirements are adequate.
2. The specialist uses agency policy and procedural guides along with the contract and related documents (e.g., specifications and technical data) in planning the scope of acquisition quality assurance activities at one or more contractor facilities. The guides cover general aspects of the work and broad procedures and actions that should be implemented onsite. Due to the diversity of products and contract requirements involved, guidelines covering all of the situations encountered are frequently not available or have only general application to the work. Uses judgment in analyzing and interpreting the contractual material to identify quality and technical requirements that must be controlled by the contractor. These requirements in turn dictate the scope of quality assurance activities which must be accomplished at each facility. Exercises skill in interpreting requirements and accurately communicating quality requirements to contractor officials. Recommends changes to the technical data when deficiencies or errors are detected.
3. The specialist uses a number of guidelines such as maintenance instruction manuals, engineering specifications, technical manuals, drawings, contracts, and quality assurance policy instructions to develop quality characteristics lists governing the maintenance and overhaul of aircraft systems and components. Reviews and interprets these materials to identify those characteristics considered critical to product acceptability, and insures that these characteristics and any additional quality requirements are integrated into shop process documents. Checks for accuracy of reference to specifications and standards. Revises quality characteristics based on analysis of quality feedback data from production shops.

*Level 3-4 - 450 points*



At this level the principal guidelines regularly used in the work include agency quality assurance policy statements and program directives, Government procurement regulations, and general administrative instructions. Guidelines are presented in general terms and frequently outline the major areas of program planning along with suggested approaches. For example, the guides may delineate major areas of concern (such as, quality assurance surveys and audits, control of quality costs, technical reviews) and assign broadly-stated responsibilities for these activities during the development of quality assurance program plans. Development of the detailed approach and methodology is left to the specialist.

The specialist uses initiative, extensive experience, and a broad knowledge of quality assurance principles and practices to develop new methods and recommend policy changes. Through review of study reports, industry specifications/standards, and textbooks, keeps abreast of new developments having potential application to assigned programs.

#### Illustration:

Program planning guidelines consist of general agency and command level directives concerning the overall scope and objectives of quality assurance activities involved in the development and acquisition of major aeronautical systems and equipment. The guides cover major functional areas, but are of limited use in developing detailed program plans. Because of the wide variations in program requirements, the specialist employs ingenuity and originality in developing new or improved techniques for obtaining effective results and overcoming unusual problems where guides and precedents are lacking.

## **FACTOR 4, COMPLEXITY**

This factor covers: the nature, number, variety, and intricacy of the tasks, steps, processes, or methods involved in assuring the acceptability of the products involved; the difficulty in identifying what needs to be done to complete assignments (i.e., the facts or conditions that must be considered); and the difficulty and originality involved in performing the overall work of the position.

The general relationship between the nature of the product and the programs or activities required to assure product quality is discussed in the section titled Occupational Information. That relationship is treated further in terms of the criteria in the factor level descriptions that follow. Four levels are described for this factor. Level 1 primarily describes entrance trainee level and advanced trainee assignments, or a level restricted to unusually limited or routine assignments. Level 2-3 and primarily reflect full performance assignments in operating level work situations (e.g., at a contractor's facility or a maintenance activity), and staff assignments or work situations in a highly specialized area, e.g., processes. Level 4 describes a more unusual work situation, typically found at the higher staff or management levels in quality assurance programs. This factor is closely related to Factor 1, Knowledge Required by the Position. Consequently, the level selected under this factor, should be compatible with the level selected under Factor 1.



*Level 4-2 - 75 points*

Work at this level involves performance of closely related individual tasks and assignments or assisting higher grade specialists in the work of larger projects. Such assignments are typically an extension of formal training, and provide opportunity for practical application of basic quality assurance methods, while increasing the specialist's knowledge of pertinent product/process characteristics.

Decisions on acceptability of a particular product or procedure are usually based on objective measurements, observations, or reference to precedent material.

Actions to be taken differ in such things as the source of information, sequence of individual tasks, the type of report format to be used, or other differences of a factual nature.

*Level 4-3 - 150 points*

The work involves application of a variety of quality assurance techniques and procedures or work directions to the planning and completion of assignments. The specialist uses established methodology and accepted practices to perform a variety of such tasks as procedures review and evaluation, statistical sampling, product inspection, monitoring controls over purchased material, checking adequacy of controls over test and measuring equipment, monitoring control of nonconforming material, reviewing controls over special fabrication or treatment processes, or investigating defects and documenting conditions requiring corrective action.

This level encompasses a variety of work situations and assignments:

- A defined segment of a larger quality assurance project where the overall assignment has characteristics comparable to those described for Level 4-4;
- Responsibility for projects where the products involved are less complex; or
- Assignments of equivalent difficulty.

Assignments at this level require the selection and application of different methods and procedures, depending on the phase of the project and the nature of the problems encountered. For example, the analysis of quality data may indicate areas where surveillance should be adjusted, or areas requiring further investigations, e.g., effectiveness of procedures in controlling quality or instances of noncompliance with procedures. By way of contrast, positions at Level perform assignments that are primarily for training and developmental purposes and have few responsibilities for planning, adjusting, or modifying work assignments.

Through quality data analysis, product inspection, procedures review and evaluation, and audit or surveillance of operations, the specialist develops essential facts concerning overall quality trends or the factors contributing to unsatisfactory conditions. In investigating quality problems, the

specialist considers a number of factors to isolate the root cause(s). For example, a particular defect may be traceable to defective raw material, errors in work instructions or quality procedures, deficient in-process treatment, faulty handling or storage procedures, or quality of workmanship.

Documentation developed concerning defective products or other situations adverse to quality form the basis for initiating requests for corrective action.

Illustrations:

1. Under the activity's program for maintenance and overhaul of aircraft engines, the specialist plans, implements, and monitors the computerized methods and statistical quality control techniques for collecting and compiling analytical data on the repair of an assigned model of an aircraft jet engine. The specialist uses work control documents to design inspection plans, outlining verification points and methods of inspection; applies statistical quality control techniques to detect trends in defects/nonconformances; analyzes quality data generated from inspections to determine need for adjusting sampling procedures; collects and analyzes data to determine quality levels of processes used in repair shops; and, on the basis of investigations, analysis of data, and correlation of defects, recommends action to be taken to correct deficiencies in technical requirements or procedures. (See illustration #1 for Level 1-6.)
2. Within the context of the overall plan for providing in-plant acquisition quality assurance, the specialist performs continuing evaluation of the contractor's compliance with procedures to control product quality. Initiates recommendations for corrective action by the contractor when deficiencies or unsatisfactory conditions are encountered. Performs product inspections as required to verify that items offered by the contractor conform to requirements. Provides quality experience data for use in adjusting level of inspection effort or for switching to control through procedures evaluation. Investigates and reports on material deficiencies, and coordinates disposition of nonconforming material. (See illustration #2 for Level 1-6.)
3. Within the depot supply program, the specialist performs cyclic inspections (on a sampling basis) of assigned supply operations and processes for compliance with prescribed regulations and procedures, compiles quality trend data and reports on quality levels found; changes sample sizes and frequency of inspections as necessary; accomplishes special audits when deficient material/operations are suspected or reported; prepares reports on out-of-control conditions, and coordinates the investigation and response to customer complaints. (See illustration #3 for Level 1-6.)
4. Performs various surveillance functions concerned with safety and quality of operations involving receipt, storage, maintenance, handling, packaging, and shipment of munition items. Specific functions include receipt and cyclic inspections, storage monitoring, functional testing, and monitoring of maintenance, modification, or disposal operations. Decisions as to what needs to be done depend on such factors as age, condition, or configuration of the items

involved. Standard operating procedures, inspection requirements and safety regulations must be considered in planning of work operations.

Decisions concerning serviceability are based on visual examination and the application of specified tests and measurements. Decisions concerning adequacy and safety of operations are based on requirements in applicable technical and supply manuals, engineering drawings, and product specifications. (See illustration #4 for Level 1-6.)

5. The work involves the application of a variety of established techniques and procedures to perform such tasks as work procedures review and evaluation, statistical sampling, product verification, monitoring controls over test and measuring equipment, reviewing controls over specific fabrication and treatment processes, assessing accuracy of technical data used in rework processes, and identification of characteristics for quality verification.

Assignments involve investigation of quality problems related to materials, processes, or documentation, identification of causes, formulating recommendations for corrective action and initiating follow up checks to prevent recurrence.

The work requires analysis of conditions, which have the potential to compromise quality, to identify or isolate the probable cause, i.e., whether the condition is attributable to inaccurate technical data and specifications, defective materials or equipment, faulty workmanship, or deficiencies in shop work procedures. (See illustration #5 for Level 1-6.)

#### *Level 4-4 - 225 points*

Quality assurance specialists at this level perform varied duties aimed at insuring the acceptability of products. The work involves application of a complete range of quality assurance principles, techniques, and methodology to plan and accomplish projects for products having complex characteristics as described under the Work Assignment Characteristics section, of the Occupational Information, to perform assignments of equivalent complexity. Broad functions concerned with planning and completing the work include: developing the overall plans and approaches based on the technical requirements; monitoring the application and effectiveness of controls and methods; and adjusting quality assurance activities as indicated by quality data trends or conditions.

Such assignments differ from those at Level in that work at this level typically involves greater responsibility for developing and implementing quality assurance plans and projects. By contrast, positions at Level operate largely within plans and procedures established for specific program or product areas. The nature of the typical products involved at this level requires application of a complete range of quality assurance principles, techniques, and procedures. That is, because the products involved are complex, quality characteristics must be progressively verified through precise measurements and tests, and controls or preventive efforts are required throughout the complete production cycle. Positions at Level are typically concerned with less complex products or with defined segments of more difficult projects typical of this level.

Decisions concerning what needs to be done involve: review and analysis of project or program documents, (contract, technical work orders) to ensure that critical quality requirements are identified and provided for in terms of the appropriate specifications, procedures, or methods of quality verification; tailoring the approach to product/ project requirements, such as priorities, scheduling, and availability of quality resources; making major modifications in approach or emphasis as conditions warrant (e.g., as a result of changing technical requirements or manufacturing techniques); and coordinating resolution of nonconformances.

The work requires making many decisions concerning such things as: determining adequacy and completeness of technical data relative to achieving overall quality requirements; evaluating capabilities of contractors' manufacturing activities for producing acceptable products; evaluating adequacy of contractors' quality control system; judging the adequacy of documentation concerning quality problems (e. g., results of investigations, problem definition, identification of root cause and making authoritative interpretations of complex quality requirements).

Assignments with the characteristics described above are found in a variety of organizational situations at the operation level (e.g., a quality assurance organization supporting a production plant or maintenance facility), in staff organization or in command/management level programs.

#### Illustrations:

1. The specialist plans, develops, and implements a quality assurance program designed to ensure compliance with all contract requirements for one or more complex products. The terms of the contract require the contractor to develop and use a written quality control program reflecting the large number of processing steps and verification points to assure acceptability of the product. Plans and develops the Government quality assurance program, providing for scheduled evaluations and inspections of the contractor's quality program and products starting with the preproduction phase and into subsequent production and delivery.

Decisions concerning what needs to be done are complicated by such factors as: changing technical requirements, changes in contractor procedures or manufacturing techniques, failure of contractor's quality controls, turnover in contractor personnel, nonconforming material, and incomplete quality data.

The work requires making many decisions concerning such things as: reviewing and interpreting voluminous technical specifications and drawings, planning and selecting appropriate control or surveillance techniques, determining adequacy of the contractor's quality program, adjusting verification and surveillance of contractor operations based on quality data, and determining the extent of corrective action to be requested of the contractor. (See illustration #1 for Level 1-7.)

2. The specialist is responsible for development and implementation of quality and reliability plans and systems for assigned products in an aircraft maintenance and rework facility. The products involved have complex characteristics, and require application of a range of quality

assurance principles and techniques to maintain acceptable quality levels. Initiates and develops quality systems by analysis of the products and manufacturing processes involved to identify areas where defect prevention methods may be applied. Develops and administers a system of internal audits and evaluations to assure conformance with plans and procedures. Designs sampling plans and surveillance procedures, systems for monitoring product certification decisions, procedure checklists, and other guidelines for reviewing quality systems. Decisions concerning what needs to be done involve: interpretation of numerous specifications and technical data, consideration of a wide range of manufacturing processes and techniques, evaluation of feedback data from using activities, and analysis of test results and processing problems.

The "work requires planning and designing systems and procedures to improve product quality in a cost-effective manner. The specialist modifies and revises quality systems and techniques based on data generated through verification and surveillance efforts, special studies and investigations, and audits and evaluations of the quality systems or the products involved. (See illustration #2 for Level 1-7.)

3. The specialist is responsible for planning, developing, and implementing integrated quality assurance programs supporting the acquisition of highly sophisticated and complex avionics systems and equipment. The work involves determining quality assurance requirements for assigned acquisition programs, and ensuring compliance with such requirements by advising on, reviewing, and evaluating work performed by other Government and contractor activities.

Decisions concerning what needs to be done involve developing unique quality requirements (e.g., sampling techniques or mandatory inspection points) for inclusion in solicitation and contractual documents to ensure that contractor quality systems are consistent with program and product requirements. The specialist uses considerable technical skill: to modify quality assurance activities due to frequent changes in program requirements, to evaluate performance of the contractors involved, and to identify and assist in the resolution of actual and potential quality problems.

The work requires the review and analysis of numerous systems specifications and technical criteria to determine specific system/ subsystem quality requirements. The specialist acts as technical advisor to design engineers, quality engineers, and other program officials in planning and conducting technical reviews and product audits. Plans and conducts onsite quality assurance assessments during program management reviews. Analyzes and evaluates quality data from contractors, operational users, depots, and test facilities, identifying adverse quality trends for corrective action. (See illustration #3 for Level 1-7.)

4. The staff specialist's assignments are concerned with the entire range of quality policies, methods, and regulations applicable to the activity's mission for overhaul, refurbishment, procurement, and proofing of undersea weapons systems, underwater range equipment, and testing apparatus. Assignments vary from those involving management level policy

considerations to significant problems or trends relative to production or inspection and test functions.

Decisions concerning the planning and development of the activity's quality system support involve investigating and analyzing available quality capabilities and resources, and recommending policy changes or adjustment of resources to meet changing workload conditions, such as the assignment of new systems/equipment projects. Leads special projects or studies to resolve problems relative to inadequate or conflicting data, and to evaluate the impact and effectiveness of existing or new quality assurance policies and methods on activity programs.

The work requires analyzing and interpreting numerous technical directives and documentation from higher organizational echelons, contractors, and other field activities to determine impact and interface with existing quality assurance programs and systems. Plans and develops necessary changes to present systems, prepares necessary procedural documentation, and coordinates implementation. (See illustration #4 for Level 1-7.)

#### *Level 4-5 - 325 points*

Assignments typically include a broad range of duties involving substantial breadth and depth of analysis; consideration of numerous interrelationships and variables to develop new approaches; or to resolve persistent, widespread, or critical quality problems. At this level, specialists frequently serve in a program/project leader capacity to accomplish particularly complex, sensitive, or long-term special studies concerning major agency quality assurance programs, e. g., major studies concerning maintenance quality programs being carried out at diverse locations of the country. Assignments may include such activities as developing criteria and methods for evaluating program accomplishments and trends, and making recommendations on changes in program organization and emphasis.

Decisions concerning what needs to be done are complicated because of such factors as: the wide dispersion of organizations and activities involved; difficulties in determining scope of the problem in these activities; multiple authorities, policies, and regulations governing the activities; relationship to and interdependence of activities, e.g., maintenance/supply/logistics function; and impact of quality costs on programmed resources.

The work involves developing innovative solutions along with implementing instructions for effecting changes involving new methodology, policies, or procedures.

Assignments having the characteristics described above are more commonly found in those organizational levels/entities having management responsibility for major quality assurance programs of agencies.

## **FACTOR 5, SCOPE AND EFFECT**



This factor covers the relationship between the nature of the work, i.e., the purpose, breadth, and depth of the assignment, and the effect of work products or services both within and outside the organization. Effect measures such things as whether the work output facilitates the work of others, provides timely services of a personal nature, or impacts on the adequacy of research conclusions. The concept of effect alone does not provide sufficient information to properly understand and evaluate the impact of the position. The scope of the work completes the picture, allowing consistent evaluations. Only the effect of properly performed work is to be considered.

*Level 5-1 - 25 points*

The work involves the performance of specific tasks and operations designed primarily to acquaint the employee with quality assurance work processes and techniques, pertinent product characteristics, and the applicable manufacturing processes, or other, operations concerning the quality program. Assignments include such tasks as performing the more routine inspections and measurements, collecting and summarizing quality data, and maintaining records on the results of sampling procedures.

While the assignments are primarily for training, they also have the effect of facilitating the work of higher-level specialists.

*Level 5-2 - 75 points*

At this level, the work involves performance of clearly defined assignments, or projects involving the application of directly related precedent material or specific work procedures. Such assignments are designed to further increase and refine job related knowledges and skills, and to provide assistance to higher-grade specialists. The work contributes to the overall effectiveness of quality assurance activities by relieving higher-level specialists of more routine work assignments such as gathering preliminary information on conditions and practices having a potential impact on quality. For example, information gathered concerning the application of quality procedures, review of technical quality requirements, or the results of inspections and tests provide a basis for decisions and action by senior-level specialists.

Illustrations:

1. The purpose of the work is to perform training assignments designed to increase technical knowledges and skills by serving as an assistant to a higher-grade quality assurance specialist. The work involves such assignments as: performing surveillance and sampling inspections to ensure an acceptable level of workmanship and adherence to quality standards for the maintenance of components of aircraft systems and ground support equipment; maintaining maintenance technical data and directives; performing audits of relatively simple work processes to insure that work is accomplished according to maintenance standards and specifications; and reviewing test and calibration procedures used in the maintenance preparation of aircraft components.

The work performed by the specialist relieves higher-level employees of the routine details of the assignment, and provides information for an overall assessment of the timely and proper implementation of new or revised work processes, use of modified or new equipment, and other controlling procedures.

2. The purpose of the work is to assist a higher-grade specialist by performing specific segments of assignments pertaining to the analysis and evaluation of shipyard quality control activities. The work involves: examining work areas aboard ship or in production shops to insure that prescribed product control and quality control procedures are followed; determining sources of deficiencies and initiating corrective action; examining planning information including specifications, quality control procedures, and fabrication records to insure that specified elements are correctly and completely stated; preparing quality trend analyses based on a review of quality records and testing data; and investigating defective material.

The work products provide basic analyses and evaluations of a variety of shipyard quality control activities. These products in turn are used by higher-grade specialists to assess overall performance of production and shop areas, and to recommend improvements in shipyard quality control techniques and procedures.

#### *Level 5- - 150 points*

The work involves performance of a variety of assignments directed toward ensuring acceptability of products, or acceptable levels of quality in the operations involved. Most problems encountered in the assignments can be dealt with by the selection and/or adaptation of formal work methods and procedures, i.e., established criteria and general operating procedures have been developed covering the nature and scope of quality assurance activities to be accomplished.

The results of the work affect the acceptability of the products involved in terms of conformance to technical requirements, meeting user's needs in a timely fashion, and performing as intended. For some positions the results of the work impact effectiveness of operations in achieving and maintaining desired quality levels consistent with economy and efficiency. In other work situations, decisions on acceptability of products may impact the financial posture of manufacturers.

#### *Illustrations:*

1. The purpose of the work is to ensure compliance with all contract requirements covering products being manufactured in one or more contractor facilities. Within the framework of established agency procedures covering inplant quality assurance functions, the specialist plans and implements the Government program to ensure that requirements concerning manufacture, inspection, testing, and delivery of equipment are met.



The results of the work affect the timely delivery of acceptable products to using agencies or activities. Adverse decisions on acceptability of the products involved may impact the financial position of the contractor.

2. The purpose of the work is to ensure conformance with prescribed standards for various special process control areas within a shipyard. Special process areas assigned include welding, brazing, heat-treating, casting, and piping system fabrication. Develops detailed procedures for monitoring and auditing assigned process areas to ensure conformance to process specifications, ship specifications, material standards, and engineering drawings and manuals. Investigates discrepant conditions and initiates appropriate corrective action. The quality of materials/processes used in the overhaul of ships affect operational readiness and ability to carry out assigned missions.
3. The purpose of the work is to develop and implement quality surveillance and audit programs for a field activity's logistic operations. The specialist develops surveillance inspection and audit plans, including plans for special audits and investigation (product and Procedures), based on agency mandated or locally developed quality programs. Areas covered include supply, storage, issue, packaging, preservation, transportation, and materials handling. Reports and findings of audits and investigations are used by logistics functional managers to correct deficiencies, improve quality of internal operations, and facilitate service to other activities.

#### *Level 5-4 - 225 points*

The purpose of the work is to plan, develop, and implement quality assurance projects of considerable breadth and complexity. Some assignments at this level may involve responsibility for planning and implementing program plans for ensuring that quality requirements for major products are achieved throughout the item's life cycle. Other assignments may involve serving as a technical specialist in a broad product or commodity area or be concerned with quality implications of highly specialized products, manufacturing processes, and techniques for a range of agency activities. Still other assignments may involve staff responsibilities in various quality assurance program activities, e.g., assessing quality assurance effectiveness for a range of subordinate activities.

The results of the work affect a range of agency activities being carried out at a number of locations. For example, projects concerned with quality planning throughout a product's life cycle affect agency programs in areas such as maintenance, supply, or storage as well as those activities in the development and production phases. Similarly, the services provided by technical specialists for a product or commodity typically have application to other agency programs and activities.

Illustrations:

1. The specialist serves in a program management office which has responsibility for the acquisition of tracked/wheeled vehicle systems. The purpose of the position is to develop and implement quality assurance program plans for the life cycle of the assigned systems. The work involves such activities as: developing plans for time-phased quality assurance life cycle functions; developing contractual material depicting quality requirements for development, production, service, and supply contracts; conducting or participating in capability surveys and product reviews; assisting and advising other elements in the implementation of quality requirements; and monitoring program actions through the production and use cycles.

The program plans developed by the specialist affect agency activities beyond the acquisition stage, such as maintenance and supply support functions. Typically these activities are carried out by a number of organizations at various locations.

2. The purpose of the work is to serve as the regional technical authority in the electronic and electrical commodity areas. The specialist furnishes expert advice and guidance to field activities for assigned commodities, develops technical quality assurance procedures, plans, and programs, including regional directives and operating instructions. Develops specialized technical commodity training as required.

Work products are in the form of new and improved technical quality assurance procedures, programs, plans, and systems for the assigned commodities which have application to field activities throughout the region. Provides advice and guidance on technical problems, that cannot be resolved at the operating levels, to acquisition activities and offices of other agencies.

3. The purpose of the work is to plan, develop, and implement quality assurance programs supporting the design, development, and acquisition of major weapons systems.

The work involves determining quality assurance requirements and assuring compliance with such requirements by advising on and reviewing work performed by other Government, and contractor personnel. The acquisition programs are characterized by high dollar value, state-of-the-art technology, compressed schedules, concurrent development and production, and frequent changes in requirements.

The results of the work directly influence quality requirements imposed on contractors and ultimately cost factors, delivery schedules, and confidence in product quality and reliability in operational use. The resolution of actual or potential quality problems impacts the activities of major contractors and the work of other agencies.

#### *Level 5-5 - 325 points*

The purpose of the work is to provide agency staff level advice and guidance in quality assurance for a major commodity program (procurement of nuclear equipment and systems), an important

functional area (quality assurance policy and functions pertaining to foreign military sales programs), or assignments of equivalent scope. The work typically involves: serving as the agency's expert technical consultant and advisor in the assigned areas; directing indepth studies and investigations to analyze and resolve critical problems; evaluating new developments in technology or regulatory matters for application in assigned areas; providing agency staff guidance and direction to counterpart field personnel and organizations; and developing specialized policy and procedural guidelines for assigned areas.

The results of the work, in terms of problem resolution, program direction, and staff guidance affect major aspects of the agency's mission relative to the assigned commodity or functional area.

## **FACTOR 6, PERSONAL CONTACTS**

This factor includes face-to-face contacts and telephone and radio dialogue with persons not in the supervisory chain. Personal contacts with supervisors are covered under Factor 2, Supervisory Controls. Levels described under this factor are based on what is required to make the initial contact, the difficulty of communicating with those contacted, and the setting in which the contact takes place, e.g., the degree to which the specialist and those contacted recognize their relative roles and authorities.

Above the lowest level, points should be credited under this factor only for contacts which are essential for successful performance of the work and which have a demonstrable impact on the difficulty and responsibility of the work performed. The relationship of Factors 6 and 7 presumes that the same contact will be evaluated for both factors. Therefore, use the personal contacts which serve as the basis for the level selected for Factor 7 as the basis for selecting a level for Factor 6.

### *Level 6-1 - 10 points*

Personal contacts are primarily with other employees in the quality assurance organization. Contacts outside the organization may occasionally be made in the company of a highergrade specialist who assumes responsibility for the contact. This level is appropriate for entrance level positions where the contacts are made in the context of a planned developmental program to acquaint the employee with various industrial processes and techniques.

### *Level 6-2 - 25 points*

Positions at this level have regular personal contact with employees and officials within the activity served by the quality assurance organization. Contacts include personnel in production, engineering, supply, or related functions. Also included are contacts with quality assurance and program officials at higher organizational levels within the agency. While the majority the contacts are with agency employees and officials, some contacts may occur with individuals

outside the employing agency. Generally such contacts involve a structured situation, in that they are arranged by or occur in the company of a senior-level specialist.

**Illustrations:**

1. The specialist has regular contacts with production employees and foremen of the shipyard while conducting audits to evaluate the adequacy of procedures and controls for various "hot processes" such as welding, brazing, casting, and heat-treating. Contacts may also include officers and crew of the ships involved.
2. At a supply depot, the specialist has regular contacts with depot functional managers in connection with the review and audit of depot storage and warehouse practices. Also included are contacts with quality assurance and supply personnel in the agency's inventory management activity.
3. At a contractor's facility, the trainee quality assurance specialist contacts employees of the firm during the course of such assignments as procedures evaluation or witnessing tests or inspections. Such contacts are typically structured by senior-level employees so that the role of the specialist is generally understood by those contacted.

*Level 6-3 - 60 points*

In addition to the personal contacts described at Level the specialist at this level has regular contacts with employees and officials of other Federal agencies and/or private industry. The individuals contacted vary according to the situation involved and require that the specialist insure the persons contacted understand their respective roles.

Personal contacts with quality assurance and program officials across agency lines (e.g., where one agency is tasked to perform procurement quality functions on another agency's contracts) frequently require that the specialist identify and locate, the appropriate person(s) to establish working relationships.

**Illustrations:**

1. The quality assurance specialist at an assigned contractor facility has regular contacts with employees and officials in the contractor's quality control, manufacturing, engineering, and administrative staff. Officials contacted vary with the particular problem involved, and are subject to change due to turnover of contractor personnel. Meets with new contractors, who may be unfamiliar with the specialist's role as the Government quality representative, to develop an understanding of their respective roles and responsibilities.
2. In addition to regular contacts with program directors, design/ quality engineers, and production managers in the weapons system project office, the quality assurance specialist has regular contacts across agency lines. For example, the specialist contacts quality assurance

employees and officials of other agencies who are tasked to perform in-plant quality functions. Uses skill and tact in onsite visits to develop a working relationship with the particular agency involved and within the contractor's organization.

3. At a fuels distribution facility, the specialist has regular contacts with the officers of private vessels which transport the materials to using activities. The individuals contacted are frequently unfamiliar with the detailed quality checks and procedures involved. This requires skill in establishing with the ship's officers the role and authority of the specialist for ensuring quality of products during transport. This work situation may also involve contacts with individuals in private or other agency testing laboratories.

#### *Level 6-4 - 110 points*

In addition to the contacts described at Level 6-3, specialists at this level have regular personal contacts with high level program and quality assurance officials in other Federal agencies, top executives of large private industrial firms, or representatives of foreign governments. The individuals dealt with vary according to the nature of the problem involved and require that the specialist ensure that officials contacted have the responsibility and authority to resolve the problems in question.

#### *Illustrations:*

1. The specialist leads a team concerned with the quality aspects of material being delivered to foreign governments under various international agreements. As the principal Government representative for quality matters, the specialist has contact with high level military and civilian representatives of the receiving country in the conduct of conferences on customer requirements, quality checks, or onsite evaluations of the materiel involved.
2. The specialist represents the quality organization at command level meetings which typically involve the participation of high level management officials from other agencies and departments. Such of the participants/agencies involved and their frequency. Generally the meetings occur on an as required basis to effect coordination of quality efforts, establish working relationships across agency lines, or reconcile operational differences.

## **FACTOR 7, PURPOSE OF CONTACTS**

For this occupation, the purpose of Personal contacts ranges from factual exchanges of information to situations involving significant or controversial issues and differing viewpoints, goals, or objectives. The personal contacts which serve as the basis for the level selected for this factor must be the same as the contacts which are the basis for the level selected for Factor 6.

#### *Level 7-1 - 20 points*

The purpose is to obtain/exchange factual information related to quality assurance assignments, e.g., to ascertain how particular tests or measurements are performed, report on the results of inspections or analyses, or obtain statistical data on production runs. This level is most likely to be found where personal contacts are limited primarily to employees within the immediate organization, and/ or where contacts are structured to provide training assignments outside the immediate organization.

*Level 7-2 - 50 points*

The purpose of the contacts includes advising responsible officials concerning problems affecting quality of the products or operations involved, and the need to effect corrective action. The specialist briefs officials on the results of audits or quality system reviews, pointing up any unsatisfactory trends or conditions. The officials contacted have responsibilities related to the development, production, maintenance, or supply of the products involved, are typically employees of the same agency, and are generally motivated to the mutual goal of maintaining an acceptable level of quality. The specialist exercises tact and persuasion in presenting findings and explaining the need for corrective action.

This situation is more typical of contacts involving employees of the same agency who tend to share the same basic goals. This level may also be appropriate for contacts involving individuals outside the employing agency, where the contacts are so structured that potentially controversial issues are handled by higher-level specialists.

*Illustrations:*

1. The specialist discusses findings of production procedures evaluation with the employees and supervisors concerned to secure indicated on-the-spot corrective action, if possible. Coordinates quality problems that cannot be immediately resolved with the responsible activity, e.g., the cognizant program/project office, engineering, supply, or quality assurance policy staff.
2. At a military depot, the specialist coordinates results of appraisals/evaluations of various depot functional activities (e. g., maintenance, equipment repair, supply, transportation) with the operating officials involved. Discusses means by which situations adversely affecting product quality may be corrected.

*Level 7-4 - 120 points*

In addition to the situations described at Level 7-2, contacts at this level require considerable skill to influence and motivate individuals to correct deficiencies which would otherwise result in unacceptable products. Such contacts require that the specialist deal with officials who may have a meager understanding of the quality requirements involved, may dispute the nature of the

requirements, or have a less than cooperative attitude. The specialist exercises a high degree of technical skill and judgment in discussing and explaining the applicable requirements and the nature and extent of the deficiencies. Considerable tact and persuasion are required to motivate individuals who may be reluctant to effect corrective action because of the potential impact on delivery schedules or cost factors.

#### Illustrations:

1. At a contractor's facility the specialist uses considerable skill and tact in persuading officials of the need to comply with contractual quality requirements in situations which are complicated because of such factors as significant technical disagreement over the precise nature of the requirements, the extent of noncompliance which may exist or reluctance to adopt effective quality measures because of the potential cost implications.
2. The work involves regular visits to agency test sites, production and maintenance activities and contractor plants to evaluate materials processes and provide technical assistance pertaining to various types of materials and their subsequent fabrication into tank and automotive equipment. The materials and associated processes frequently involve state-of-the-art or innovative technology which may not be completely understood by those contacted. The specialist uses considerable skill in explaining processing requirements and in convincing others of the need to change from more traditional methods to accommodate the new technology, e.g., the impact of new or composite materials on established maintenance procedures or testing programs. The specialist is also utilized to evaluate and advise on material processing problems at private contractor facilities. Must be skilled in explaining requirements, and in motivating the contractor to change processes or operations to produce acceptable products.

#### *Level 7-4 - 220 points*

The purpose of the contacts is to negotiate or settle significant issues or problems which require escalation because established channels and procedures have failed to resolve the problem. The issue or problem may concern significant quality deficiencies impacting major equipment acquisition programs (i.e., the deficiencies affect the timely delivery of acceptable equipment), or persistent noncompliance on the part of a contractor where formal efforts to effect corrective action have been unsuccessful. The contacts may also concern problems of a similar scope which require negotiation with management representatives of other agencies, or representatives of foreign governments or international organizations. The quality assurance specialist assumes the lead in investigating the problems, such as leading a special study project or interagency working group, to achieve a common understanding of the causes, and in effecting a compromise or developing acceptable alternatives.

## **FACTOR 8, PHYSICAL DEMANDS**

This factor covers the requirements and physical demands placed on the employee by the work assignment. This includes physical characteristics and abilities (e.g., specific agility and dexterity



requirements) and the physical exertion involved in the work (e.g., climbing, lifting, pushing, balancing, stooping, kneeling, crouching, crawling, or reaching). To some extent the frequency or intensity of physical exertion must also be considered, e.g., a job requiring prolonged standing involves more physical exertion than a job requiring intermittent standing.

*Level 8-1 - 5 points*

The work is primarily sedentary. Employees may occasionally visit manufacturing or other areas where they may do considerable walking, standing, or bending. However, these situations do not occur frequently enough to exceed this level. May be required to drive a light vehicle.

*Level 8-2 - 20 points*

In addition to the work performed at a desk, the duties regularly require extended periods of walking, standing, or bending while observing manufacturing operations, witnessing tests or examining material and processes. Most positions assigned to operational quality assurance programs (e.g., at a contractor's facility or a maintenance or manufacturing activity) will be point rated at this level.



Illustrations:

1. At an aircraft maintenance facility the specialist makes regular visits to production shops, and is required to climb in and around aircraft to verify completion of required work or to witness tests on overhauled equipment and systems.
2. At an ammunition storage facility, the duties involve frequent walking, bending, and stooping to examine material and storage areas; prolonged standing while monitoring maintenance and rework operations; and frequent lifting and carrying of items required for cyclic inspection of ammunition stores. Materials handling equipment is available for lifting and maneuvering the heavier items.

## **FACTOR 9, WORK ENVIRONMENT**

This factor considers the risks and discomforts in the specialist's physical surroundings or the nature of the work assigned and the safety regulations required. Although the use of safety precautions can practically eliminate a certain danger or discomfort, such situations typically place additional demands upon the specialist in carrying out safety regulations and techniques.

*Level 9-1 - 5 points*

The work is performed in a typical office setting with adequate heating, lighting, and ventilation. The specialist may occasionally visit manufacturing facilities, but such visits do not occur frequently enough to preclude the use of this level.

*Level 9-2 - 20 points*

In addition to the work that may be performed in an office setting, the duties involve regular and recurring visits to manufacturing, storage, or test areas. Such visits may require use of appropriate protective clothing or gear such as safety glasses and shoes, ear protection, and hard hat, and observance of appropriate safety precautions.

Illustrations:

1. The work environment includes warehouses (with or without environmental controls) and open storage areas, requiring clothing appropriate to the season. Exercises care in working around conveyors and materials handling equipment.
2. The work involves frequent exposure to moderate discomfort such as high noise levels aboard ship or in industrial areas of a shipyard, high temperatures around steam lines, and moving carts or cranes. Required to use protective clothing/devices appropriate to the work area visited.

*Level 9-3 -50 points*

In addition to those duties which are accomplished in an office setting, the nature of the work requires that the specialist on a regular and recurring basis be exposed to potentially dangerous situations. The work requires knowledge and application of special safety devices and equipment (e.g., toxic chemical protective clothing), and strict adherence to work procedures and safety precautions to avoid hazards, such as those pertaining to work in a known toxic environment or investigating the failure of munitions items to detonate.

**Illustrations:**

1. The specialist performs surveillance of operations concerned with the receipt, storage, inspection, maintenance, renovation, issue, and demilitarization of ammunition items. Ammunition items include grenades, pyrotechnics, chemical munitions, bombs, bulk explosives, rocket motors, warheads, and special weapons. The specialist conducts prestorage inspections and evaluates safety and degree of serviceability of ammunition items. Reviews work performed by employees assigned to assist in ammunition inspection, maintenance, or renovation activities and provides guidance on proper and safe methods and operations. Determines compliance with established performance and safety standards and recommends work stoppage in hazardous situations.
2. The specialist is assigned to manage the quality assurance program at a prison or is required to periodically visit such institutions to perform audit or surveillance functions or to inspect and accept products manufactured at the prison. The work requires contact with inmates and the exercise of extreme precautions and the observance of strict security measures.

## **EXPLANATORY MEMORANDUM QUALITY ASSURANCE SERIES, GS-1910**

### **INTRODUCTION**

The classification and qualification standards for the Quality Assurance Series, GS-1910, issued in June 1970, have been revised. This memorandum summarizes the major changes made in response to agency comments on the draft of these standards, and provides explanatory material to aid in understanding why recommended changes were or were not adopted.

As a result of this study of quality-related occupations the Quality Inspection Series, GS-1960, has been cancelled. This memorandum discusses agency responses to this proposal, and provides guidance which may be useful to agencies in effecting the reclassification of quality inspection positions. Users should also take note of conforming amendments to the material in [Section IV of the Introductory Material to the Position Classification Standards](#) and the revised material in the [Job Grading Standard for Inspectors](#).

### **CLASSIFICATION STANDARD**

#### **Introductory Material**

**Series Definition:** Minor editorial changes were made to bring the series definition more in line with the systems approach to quality assurance. A question was raised concerning expansion of the series definition to include positions involved in monitoring industry quality control activities where the products involved are subject to Federal laws and regulations. Currently, positions involved in legal and regulatory compliance work are included in specialized series in the [Investigation Group, GS-1800](#), or in specialized series in other occupational groups based on the particular knowledge and skills required. In some cases we have recognized that the work of these series also involves monitoring industry quality control programs in addition to inspecting for legal and regulatory compliance. We believe that the use of these more specialized series is appropriate. However, agencies may find the criteria in this standard useful for cross-series comparison.

**Coverage:** In response to the concerns of a number of reviewers, we have expanded the discussion of the distinctions between quality assurance programs and inspection programs. We believe it important to emphasize the fact that this series covers positions involved in a variety of technical and administrative procedures and functions in a systematic effort to assure that quality requirements are achieved and products perform as intended. Inspection is but one of the techniques used by quality assurance specialists to achieve these goals.

This discussion does not reflect a changed view of the basic concepts of quality assurance work. Neither does it reflect merging of the two series, as some reviewers have suggested instead this material places inspection activities in proper perspective as they relate to quality assurance work.

In their comments, some reviewers conveyed the impression that cancellation of the GS-1960 series would automatically change such positions to the quality assurance series. This is not the intent. Positions which were appropriately classified to GS-1960 based on their being primarily involved in inspection work will not be correctly classified under GS-1910. (Primarily, in this context, does not necessarily mean proportion of time, but rather the essential requirement or characteristic responsibility of the position.)

**Exclusions:** We did not adopt a recommendation to eliminate Exclusion 5, which would have included positions currently in the [Construction Control Series, GS-809](#), in this series. The knowledge, skills, and abilities required of positions in the Construction Control Series are sufficiently different from those required in quality assurance work to warrant treatment as a separate occupational series.

**Titles:** Our intent, in this or any other series, is to provide concise yet descriptive position titles, and to encourage the use of organizational titles where agencies have such a need. Excessive titles are cumbersome and frequently counter-productive in that they may imply a compartmentalization of positions when this is not warranted, based on the duties and the knowledges and skills required. For these reasons we did not adopt recommendations to expand the basic position title to indicate the functional program involved, e.g., supply quality assurance specialist.

**Specializations:** We also received a considerable number of recommendations concerning the authorized specializations. Generally, these proposals involved the realignment of specific items within existing specializations (e.g., Ammunition and Aerospace) or the identification of emerging specialties such as computer software. For some specializations where the product was comprised of a number of sub-systems, or comments a number of reviewers felt that the component as a product might often require different knowledge than the end item itself. We agree and have restructured some of these definitions accordingly. We have made a number of other changes based on reviewers' comments and believe that these revised definitions are an improvement over those used in the draft.

The titling instructions now provide that the specialization be based on the paramount product knowledge required. In some cases the identification will be to a technical specialty such as materials and processes. We recognize that selection of the appropriate specialization may frequently be complicated by the presence of a mix of products. In other cases the products may change frequently, as in the case of some acquisition positions. Still other products may have characteristics typical of more than one specialization, e.g., electromechanical equipment. In these cases, where identification to a specific specialization would be inappropriate we have provided for the use of the basic position title. This approach will avoid unduly complicated and possibly misleading titles and preclude the need to continually adjust and revise position titles.

We did not adopt a recommendation to include support services as an authorized specialization. This specialization would have included positions involved in monitoring various service contracts such as those for janitorial services, commissary stocking, food service or housing maintenance.

Many of the positions involved with these functions are currently classified to the Quality Inspection Series, GS-1960. In other cases, agencies have determined that the work is characteristic of the wage grade inspector category.

While we cannot prejudge the classification of each of these situations, we agree with some reviewers that the knowledges required for this work are substantially different from those required of quality assurance specialists who monitor production contracts. One reason may be the nature of the services involved-extensive quality assurance plans and procedures may not be required for certain routine operations such as janitorial services or commissary stocking. Additionally, functional specialists concerned with the administration of these contracts may be involved to the extent that the monitoring function performed by these positions primarily involves inspection or evaluation of the service provided. This kind of work situation is discussed in the sample job description for [Custodial Work Inspector](#) in the Job Grading Standard for Inspectors. However, we recognize that there may be other situations where a General Schedule series is appropriate, based on the specialized knowledge and skills required.

The definition of the metrology specialization has been modified by removing the terms evaluation, calibration, control, and certification. This was done to avoid confusion since some of these terms individually refer to functions more typical of wage grade occupations, e.g., calibration. We recognize that metrology is a general concern of most quality assurance specialists. In some cases test equipment may itself be the product involved in the quality assurance program. In other cases metrology may be a functional specialization for staff specialists in a manner similar to a materials and processes specialist. However, we did not wish to convey the impression that positions primarily involved in the calibration of test equipment are included in this series.

For additional information, see the [Job Grading Standard for Electronic Measurement Equipment Mechanic](#) or [Instrument Mechanic](#).

In the draft standard, nondestructive testing (NDT) was inadvertently deleted from the definition of the materials and processes specialization. While this has been corrected, the omission apparently caused some confusion and may have created an impression that such work should be classified to another series such as Engineering Technician, GS-0802, or Quality Inspection, GS-1960. The NDT work in question primarily involved development of methods, process instructions and techniques used to accomplish various tests, and the work was performed in the context of a quality assurance program. In this instance, we believe the work may be classified to the Quality Assurance Series, GS-1910, unless the work clearly requires knowledge and skills associated with another specialized series. (See exclusion 2.) For additional guidance on treatment of NDT work involving the setup and operation the equipment and evaluation of the results against definitive standards, see the definition for [Test Equipment Operator, WG-5439](#).

Occupational Information: A number of reviewers indicated some problem with identifying specific quality assurance procedures and techniques applied in this work. We have revised the discussion of the various quality assurance functional programs to more clearly identify these.

We received a number of specific recommendations concerning the description of the various quality assurance functional programs from subject matter specialists and personnelists. Rather extensive use was made of these proposals in making editorial revisions to this material. Along these lines, we have substituted the term acquisition for procurement as being more consistent with current usage. Another significant change the expanded discussion of quality assurance functions performed in acquisition activities. The definitions of product complexity in the final standard are essentially the same as those used in the draft with some suggested editorial revisions incorporated. Conceptually, these definitions are very similar to those included in the previous standard for this series. After considering all of the responses on this issue we have decided to retain the conceptual definitions of product complexity without specific illustrations for the following reasons:

1. Specific examples would have limited utility due to advances in technology and the introduction of increasingly sophisticated products. For example, a product currently categorized as complex due to state-of-the-art technology would have limited usefulness as an example, once that technology evolves into standard or routine practices.
2. The conceptual definitions provide greater flexibility in considering product complexity in terms of new products which are being developed as well as those currently involved in this work.
3. We believe that the definitions used in the standard generally consistent with similar product complexity definitions used in quality assurance work, such as those used to specify the level of quality requirements applicable to the acquisition of products.
4. A number of agencies have developed internal guidance supplementing the product complexity definitions in the current standard. Since the criteria are essentially the same, this guidance may still be valid.

**Grading Position:** A statement has been added regarding the use of factor levels lower than those reflected in this standard to establish positions below the normal entrance level for career mobility purposes. This was done in response to a general concern that such positions might be needed to continue mobility programs which currently use the Quality Inspection Series.

## EVALUATION CRITERIA

Based on the comments and suggestions received from reviewers, additional illustrations of the application of factor level concepts have been provided. In some cases, additional factor level descriptions have been included. The changes and additions primarily relate to typical work situations in the occupation. We did not adopt illustrations relative to managerial or atypical work situations.

*Factor 1:* From some of the comments received, it appeared that reviewers may not have fully appreciated the linkage between the illustrations used for Factors 1 and 4, i.e., the material

provided was drawn from the same general work situation. This linkage was provided to further illustrate the relationship of the levels of knowledge and skills required and the nature of tasks performed and the difficulty and originality involved.

The significant changes to the factor level material are as follows:

- Level 1-5

- o Coverage of the level has been clarified and additional illustrations are provided.

- Level 1-6

- o The description of the factor level has been revised to avoid confusion with what appeared to be alternate knowledges and skills for this level. This change also required a revision to illustration #3 to demonstrate application of such knowledge and skills.
- o Illustration #1 has been revised to clarify distinction between this illustration and #2 for Level 1-7.

- Level 1-8

- o We did not adopt recommendations to cite specific organizational levels or entities in the description of this factor level as being potentially misleading and/or restrictive.
- o An illustration was provided for this level which depicts an agency headquarters work situation. However, this is not an indication that this level of knowledge only exists at this organizational level, nor does every position in that organization automatically warrant Level 1-8.

*Factor 2:* The introductory paragraphs for this factor have been revised to provide additional guidance for those situations where the specialist is physically separated from the immediate supervisor, either for intermittent periods or on a regular basis. The thrust of the guidance is to caution against an automatic assumption that this aspect would warrant a higher factor level than would normally be assigned were the supervisor and employee co-located.

## Levels 2-3 and 2-4

- o Factor level descriptions have been revised to clarify coverage and resolve problems in level determination reported by reviewers, and illustrations have been added to help clarify application of factor level concepts.

*Factor 3:*

## - Level 3-2

- o The factor level description has been revised to clarify the nature of minor adaptations to guidelines typical of this level, and two illustrations have been included.

## - Level 3-3

- o Editorial revisions were made to the factor level description, and illustration #2 has been revised. These revisions were felt to be necessary to distinguish more clearly this level from Level 3-4, i.e., where guidelines are scarce or of limited use and the employee regularly deviates from established methods or develops new methods, criteria, or policies.

*Factor 4:* Minor editorial revisions were made in the introductory material to substitute the term advanced trainee for developmental in the discussion of the general coverage of Level 4-2. Apparently the use of the term developmental in this context caused some confusion.

## - Level 4-3

- o Illustration #1 has been revised to clarify the statistical quality control work situation described in this example.
- o Illustration #5 was added to cover a typical operating level position in a maintenance quality assurance organization. (See illustration #5 for Level 1-6.)

## - Level 4-4

- o The factor level description has been revised to reflect performance of assignments of equivalent difficulty, i.e., equivalent to those involving products with complex characteristics. As drafted, this general summary of the factor level was felt to be overly restrictive and tied too closely to product complexity. Equivalent difficulty in this context refers to assignments which are comparable in terms of the nature of the work and difficulty of performance rather than the products per se.



*Factor 5:**- Level 5-2*

- o The factor level description has been revised in response to reviewers' comments concerning the difficulty in evaluating this level.

This revision also required conforming changes to Level 5-1.

*- Level 5-3 and 5-4*

- o Additional illustrations have been provided to clarify distinctions between these levels.

*- Level 5-5*

- o Specific descriptive material for this level has been included to illustrate application of level concepts to a staff quality assurance work situation.

*Factor 6:**- Level 6-2*

- o The factor level description has been revised. A number of reviewers had difficulty in evaluating contacts beyond this level and felt that, as drafted, the level was too restrictive.
- o An additional illustration of level concepts has been provided.

*- Level 6-4*

- o A description for this level with illustrations has been added to reflect the nature of contacts involved in foreign military sales activities and staff liaison work.

*Factor 7:**- Level 7-2*

- o The material was revised to further clarify distinctions from Level 7-1.

*- Level 7-3*

- o The description has been revised since it appeared a number of reviewers did not use this level because they felt the description was rather restrictive.

- Level 7-4

- o A description for this level has been provided to illustrate a level of contacts involving significant or controversial issues or problems which have been escalated beyond established channels for settlement.

*Factor 8:* No changes.

*Factor 9:*

- Level 9-3

- o Revised to provide additional explanatory material on factor level concepts.
- o Additional illustration provided covering the work environment of specialists who either work full time at, or regularly visit Federal prisons, and come into contact with the inmate population in the performance of their work.

Benchmarks: Reaction to the use of illustrated factor level descriptions in lieu of benchmarks was generally favorable. Some reviewers felt that this approach provided a greater degree of flexibility.

Other reviewers commented on the diversity of work situations that would need to be covered and concluded that this might be done more effectively with agency developed benchmarks.

In view of the results achieved in test application of the draft and the additional illustrations provided in the final standard, we have not provided benchmarks.

1. General Comments:

One organization expressed concern over a reference in the draft standards to GS-9 as the first full performance level in this occupation. Apparently, the reviewer felt that this statement (which appeared in the draft qualification standard) implied a new "journeyman" level for the occupation, since the reviewer considered the journeyman level to be grade GS-11. The specific concern related to the replication of grade levels produced by the previous classification standard.

The results of test application of the draft standard indicate that, in general, existing grades for properly classified positions are replicated when the Factor Evaluation System (FES) format is applied. The June 1970 standard for this occupation described a number of full- performance (i.e., nontrainee) work assignments at grades GS-9. This feature is not materially changed by use of the FES format.

Even though the statement in question related to the quality of experience required at GS-9, it has been revised to avoid any possible misunderstanding or confusion.

## 2. Variety:

One agency expressed concern for the evaluation/treatment of work situations involving a factor of variety. For example, the work assignment could be concerned with the quality requirements for a variety of products each of which would be characterized as less complex. Apparently, the variety of products involved were felt to impose a level of difficulty equivalent to a situation where the specialist might deal with only one complex product.

We believe this concern is best addressed in a general fashion, since variety per se could have application to all nine FES factors. That is, if it were possible to credit in an incremental fashion the knowledges associated with X number of products, this same rationale for credit should apply to X variations of personal contacts or X work environments. Presumably, under such an evaluation method, a given number of assignments each of which individually equate to Level 4-3 could be evaluated to Level 4-4, for example.

This would not be a proper application of FES principles. Factor levels under FES are based on progressive rather than aggregative concepts. Each succeeding factor level presumes a higher level of knowledge or assignments involving a higher order of difficulty. An evaluation plan which would credit variety would be totally incompatible with FES. However, this does not rule out the application of mixed grade concepts where such credit would be appropriate.

## 3. Product Complexity:

Reviewers generally agreed that a correlation exists between the complexity of the product involved and the difficulty of work assignments. Some reviewers pointed out, and we think correctly, that this relationship may not fit perfectly or have direct application in every work situation. For example, this relationship would be less tangible for staff positions which are functionally or program oriented than for those positions at the operating level where the product and its associated quality characteristics are the primary concern. However, where there is a tangible relationship between the nature of the product and difficulty of the work, the levels of product complexity should serve as general frames of reference and assist users in determining factor levels.

# QUALIFICATION STANDARD

In general, reviewers felt that the draft represented an improvement over the current qualification standard for this series. With some few exceptions, reviewers felt the approach used in the draft would assist in qualifying applicants for entry level positions and in crediting related work experience above the entry level.

## Career Mobility

We have included in the introductory material a general discussion of the use of this standard, in conjunction with the instructions in Handbook X-118, in filling mobility positions below grade

GS-5. The guidance is provided in response to a general concern of reviewers for mobility programs, which in the past utilized the GS-1960 series. This process, in general, involves positions, the appropriate requirement would be two years of experience which included six months of work at no lower than grade GS-3. Similarly, the knowledge and skills would be adjusted to meet the particular requirements of the predevelopmental position involved.

### Length of Experience

We have clarified the use of experience criteria in the standard. The standard reflects the minimum time required to develop and demonstrate possession of the knowledge and skills required. Possession of the knowledge and skills for the grade level sought is the paramount consideration in evaluating candidates.

### Educational Substitutions

We received mixed views on the proposal to allow substitution of a bachelor's degree in any field for the requirements at GS-5. Some reviewers felt that any substitutions should be restricted to degree work in a related field. We have not changed this substitution provision. The requirement for degree work in a related field as a condition for substitution is overly restrictive for entrance level trainee positions. However, we have clarified the material on educational substitutions to insure that additional credit is provided for those who offer related degree work.

### Superior Academic Achievement

We have described the conditions under which it would be appropriate to credit superior academic achievement at the baccalaureate level to qualify for GS-7, i.e., the study must be in a related field, and the criteria in Handbook X-118 for use of this provision are fully met. Applicants with a bachelor's degree in a related field who meet one of the superior academic provisions may be qualified for advanced trainee positions (GS-7) with known promotion potential. The previous standard which allowed credit for superior academic achievement also required that the baccalaureate study be in a related field. The superior academic provision in this standard has this same effect.

### Crediting Graduate Degree Work

Some reviewers felt that the provisions for crediting certain graduate degree work at the GS-9 level should be continued and the new standard provides for this. For this level, the provision applies only to directly related degree work. We have included an example of how degree work in certain specialized technology areas may have provided the required knowledges and skills for positions where this technology expertise is paramount. For example, advanced degree work in metallurgy may be appropriate for technical specialist positions in the materials and processes specialization. On the other hand, more general degree programs (such as statistics) may not have provided the full range of knowledge and skills required for GS-9 operating level positions such as those involved in monitoring contractor quality control programs.

## **CANCELLATION OF THE QUALITY INSPECTION SERIES, GS-1960**

In the transmittal of the draft standards, we discussed our findings from the study of positions in the Quality Inspection Series, GS-1960, and solicited agency views on a proposal to cancel this series. The following discusses the nature of the responses to specific questions/issues related to the proposal, and provides some additional guidance concerning the transition of these positions.

### **Agency Views on Cancellation**

Of the agencies which indicated a specific preference for either canceling or retaining the series, a majority favored cancellation. A number of the agencies in the majority, however, had job populations ranging from 25 to 100 positions. For the four largest users of the series, two favored retention, two favored cancellation.

In general, agencies did not take issue with the major findings of the study of quality inspection work. The agencies did provide various reasons for retention of the series as follows:

1. The GS-1960 series provides a source of qualified individuals or the quality assurance career field, and should be retained for that purpose.

This is a general concern of agencies whether or not they favor cancellation, since the series is used rather extensively as a bridge or training occupation. We recognized that cancellation of this series would also require careful consideration in the revision to the quality assurance specialist qualification standard to insure that career mobility would not be impaired by this action. We believe that the responses to the draft qualification standard, discussed above, confirm that this objective has been met.

2. Cancellation of this series would cause quality assurance specialists to become more involved in inspection activities.

This is a position management issue within the authority of the agencies. Cancellation of the series may or may not have that effect. (See the discussion on quality assurance versus inspection in the introductory material to the standard.) Obviously, there are options available to managers of quality programs, both in terms of the overall approach to quality (preventive efforts versus end-item inspection) and the organization and structuring of individual work assignments.

3. Abolishing the GS-1960 series would unnecessarily require trade experience for many of these positions.

Cancellation of this series should not be interpreted as a mandate to convert every GS-1960 position to a wage grade inspector category. However, as a number of agencies have indicated, this will be the case with a very large number of the positions involved. This is particularly true where currently inconsistent pay category determinations have been made for

the same or very similar inspection activities. For these situations a new requirement for trade knowledge and skills is not being imposed. Instead, we are insuring that the existing requirements will be applied consistently.

There may be a number of inspection situations that would not require full journeyman trade knowledge and skills. For example, the inspection of routine building maintenance work may not require the knowledge and skills of a journeyman trades person such as a carpenter or maintenance mechanic. Similarly, many product testing functions may be approximately performed by wage grade employees who do not possess the (trade) knowledges and skills required to produce the particular product being tested-See the definition for the [Test Equipment Operating Series WG-5439](#).

We are also aware of some situations where GS-1960 has been used as a catch-all series for positions which are subject to the General Schedule. Such positions typically involve an inspection or evaluation function and require knowledge and skills appropriate to another specialized series. In some cases GS-1960 was chosen because of what were felt to be advantages in recruiting applicants. We would expect in these cases, that the positions would be allocated to the appropriate General Schedule series.

In the transmittal to the draft standards, agencies were asked to identify significant blocks of GS-1960 positions which could not be allocated to other General Schedule series or Federal Wage System occupations. Our intent here was to try to identify groups of positions that might be treated as an occupation for standards development purposes. We, of course, have a continuing interest in agency views on their needs for occupational standards development.

4. Cancellation of this series would adversely affect the recruitment of women and minorities for the Quality Assurance Series, GS-1910.

Apparently, this view relates to the use of GS-1960 as a bridge occupation, in that it provides opportunity for individuals to gain experience qualifying for GS-1910 by providing for entry at the GS-4 level. We understand that this concern is also related to an under representation of females in wage grade inspector ratings.

Experience which qualifies individuals for quality assurance work is not restricted to inspection activities. The qualification standard recognizes that the knowledge and skills required for entry level positions may be obtained in other lines of work. Moreover, the changes we have made to assist career mobility efforts should eliminate the need to move individuals through a bridge position to the quality assurance career ladder.

5. Career status and advancement potential would be diminished.

This is again an issue that has been dealt with in the revisions we have made to the qualification standard. We should also point out that a significant number of the GS-1960

positions looked at during the study were specifically excluded from agency quality assurance career programs.

6. Pay disparities will result if the series is abolished.

The extent to which pay disparities result may be controlled to some degree by decisions program managers make concerning their approach to quality assurance and the organization of individual assignments.

### Summary

The rationale supporting retention of this series relates primarily to nonclassification issues. Some of these issues, such as recruitment have already been addressed in the revised qualification standard. The other issues related to position management and pay cannot be addressed by this (or any other) standard.

The principal classification issue is the proper pay category for inspection work: This issue, along with our findings that the paramount knowledge and skills applied in the work relate to the trades, craft, or laboring occupations, was discussed in the transmittal of the draft standards. The comments received support these findings insofar as product inspection work is concerned. Where there was disagreement, the issue involves work that may be appropriate to other wage grade categories which do not require trade knowledge and skills in the sense of journeyman level skills in an apprenticeable trade. Nonetheless the work is characteristic of trades, crafts, or laboring occupations and is excluded from coverage under the General Schedule.

Deciding the pay category question for product inspection work is only one aspect of the cancellation of this series. Other work situations may require the use of wage grade ratings other than the inspector category, or in some cases agencies may find it appropriate to use a specialized series under the General Schedule. As pointed out earlier, each work situation must be evaluated on an individual basis.